Chapter 2 Alternatives

Introduction

Chapter 2 describes the alternatives and processes used to formulate or eliminate alternatives. The action alternatives meet the purpose and need to a varying scale. Some alternatives would initiate restoration activities on a larger scale than others (e.g., Alternative 4 covers more acres and closes more roads than any other action alternative). Should an action alternative be implemented, it would not bring full or immediate restoration to the entire project area by itself. Full and immediate restoration is not biologically feasible at one time. Future projects would need to be implemented. Maps of each alternative considered in detail are included at the end of this chapter. Specifically, this chapter provides a description of the following:

- The process used to formulate alternatives;
- Alternatives considered in detail;
- Items common to all action alternatives;
- Alternative comparison;
- A discussion of how each alternative addresses the significant issues identified for the project;
- Site-specific mitigation and monitoring plans proposed for the project, and
- Alternatives considered, but eliminated from detailed study, as well as reasons for elimination.

Process Used to Formulate the Alternatives

District and Forest resource specialists, using the Responsible Officials specific direction to define the scope of actions, developed the Proposed Action. This direction is found within the Project Initiation Letter, which was signed by District Ranger Jim Keniston (December 1999). Public scoping began in November 1999, when the Proposed Action was mailed to interested public, state and federal agencies for comments. The IDT reviewed each comment and identified significant issues. The significant issues (described in detail in Chapter 1) were used in combination with the purpose and need to formulate alternatives, develop mitigation, and monitor effects.

The No Action Alternative is required (40 CFR 1502.14d) and may be used as a baseline to compare the various action alternatives, although it does not meet the purpose and need for action. Current projects and activities authorized with other NEPA based decisions would continue as permitted; however, the stated purpose and need described in chapter 1 would not be achieved.

In January 2000, the IDT developed general themes that would best meet the significant issues identified through scoping. These themes were the framework for each alternative. In March 2001, the DEIS was mailed to members of the public who had expressed interest in this project. A 45-day review and comment period for the DEIS ran through April 23, 2001. Based on comments received on the DEIS, on May 22, 2001, the Forest Supervisor decided to prepare a Supplemental DEIS pursuant to 40 CFR 1502.9(c)(1)(ii). In November 2001, the SDEIS was mailed to interested publics. The review and comment period for the SDEIS ran through December 31, 2001. Comments received were analyzed for issues not addressed by the DEIS and SDEIS. In March 2002 the responsible official, IDT and supporting resource specialists refined and modified the Proposed Action and developed a seventh alternative (Alternative Seven-A) to the Proposed Action. Alternative Seven-A is a modified version of the Preferred Alternative. The responsible official approved the range of alternatives on March 28, 2002. The comments received and agency responses are located in Appendix D. Each action alternative presented in this FEIS is a different approach to meeting the purpose and need for action while addressing the significant issues identified in Chapter 1.

All proposed projects would meet existing laws, regulation, and policies. All known threatened, endangered, or sensitive plant or animal species would be protected from adverse impacts by any project. Wetlands would not be adversely impacted. Project activities would protect cultural resources in accordance with the National Historic Preservation Act, Executive Order 11593 Protection and Enhancement of the Cultural Environment, May 13, 1971, and other legislation and policy.

Alternatives Considered for Detailed Analysis

The IDT and responsible official in response to the issues that were discussed previously developed the alternatives described below. Eight alternatives are considered in detail: the No Action, the Proposed Action, the Preferred Alternative and five alternatives to the Proposed Action. Foldout maps of alternatives considered in detail are provided at the end of this chapter. Large-scale maps are available in the project planning record (located at the District Office). Appropriate mitigation measures have been developed as needed for the action alternatives.

In the DEIS alternatives considered for detailed analysis were numbered 1 thru 5, 10 and the Preferred Alternative. Due to confusion expressed by reviewers, alternatives considered for detailed analysis in this document are numbered sequentially (1 thru 7a). Alternative 10 in the DEIS is Alternative Six in this document. and the Preferred Alternative in the DEIS is Alternative Seven in this document; Alternative Seven is a combination of the vegetation treatments from DEIS Alt. 4 and the road package from DEIS Alt. 10. In the DEIS, alternatives were given short titles to give the reader a quick understanding of the key action or output for each alternative. However, because such general labels too clearly distort the nature of the multiple actions within each alternative, and comments suggested the names were misinterpreted, none of the alternatives are named except for No Action (Alternative One), the Proposed Action (Alternative Two) and the Preferred Alternative (Alternative Seven).

All acres and volumes listed herein are approximate. In most cases, units or stands have been delineated using the most up to date information available and acreages have been determined

through computer analysis. Acreages are considered approximate until treatment units are actually laid out and verified on the ground.

Alternative One – No Action

Under this alternative, none of the specific management activities proposed in this document would occur. Activities already under permit or contract, or authorized under other NEPA based decisions, such as recreational use, firewood cutting, fire suppression, and livestock grazing would continue at current levels. Management activities such as prior road closures, reforestation, precommercial thinning, fuels treatments, and prescribed burning proposed by other environmental documents would be implemented as originally planned. The no action alternative provides a baseline against which effects of the action alternatives could be measured and compared. Under no action, environmental consequences would still occur because the existing environment is not static.

Access and Travel Management

Prior Environmental Assessments (EA) (Gold EA and Decision Notice November 8, 1990, Joaquin EA and Decision Notice April 14, 1992, Myrtle Park EA and Decision Notice August 13, 1993) have identified, analyzed and documented decisions on roads to be closed. One hundred seventy four roads, totaling 63 miles, were either previously identified as closed; proposed to be closed under past environmental documents; historic closures; or breached closures. The decision to close these roads has been made. Under the no action alternative, these roads would be treated to provide self-maintaining drainage structures to reduce sedimentation and closed. No additional roads would be closed or decommissioned. Temporary road construction, and road reconstruction, would not occur. Road maintenance operations would occur as funding permits.

Activities Proposed Within The Myrtle-Silvies Roadless Area

Under the No Action Alternative, no additional activities would occur in the Myrtle-Silvies Roadless Area. No additional prescribed burning activities would occur within the Silvies River portion of the roadless area. No precommercial thinning and related fuel treatment activities would occur within the two potential bald eagle winter roost stands.

Riparian Habitat, Water Quality, and Fisheries Habitat Restoration Activities

Under No Action Alternative, no corrective actions would be applied towards restoring riparian areas.

Vegetation Condition Activities

No additional vegetation treatments would be implemented at this time. Prescribed fire would not be reintroduced to the watershed and fuel levels would continue to increase. Stands would continue to be at risk of stand-replacing wildfires.

Existing noxious weed populations identified and covered under the Forest Wide Noxious Weed EA, would be treated as authorized. The twelve new noxious weed sites would not be treated.

Projects Common to All Action Alternatives

The following projects are common to all action alternatives.

Restoration of Riparian (Springs) Habitat

Restoration of springs is proposed for improvement of wildlife habitat and watershed enhancement. All known springs (Reference Map 24) located within harvest units would be buffered from commercial harvesting activities for 100 feet around spring (for springs and wetlands less than 1 acre) or 150 feet around spring (for springs and wetlands greater than 1 acre) and 50 feet both sides of category 4 drainage originating from the spring.

Noncommercial activities proposed on 46 springs (Reference Map 24) to meet wildlife habitat objectives within the 100 or 150 foot buffer area around spring include:

- Reduction of juniper less than 18" dbh;
- Retention of old growth juniper greater than 18" dbh for future snag sources;
- Creation of snags as needed (pile and burn slash at base of junipers; conifers would be girdled or snags may be created by other means) to reach 1-2 snags per spring;
- Precommercial thinning of conifers less than 7" dbh (9" dbh for Alternatives Three and Six); and
- Leaving some slash on site to provide a barrier to ungulates.

Noncommercial activities proposed on five springs (Reference Map 24) to meet watershed objectives include fencing the riparian area of influence (generally the areas remaining in a green appearance during periods of drought) up to a maximum of approximately 150 feet from the wet area to protect riparian vegetation. About 10 acres on five springs would be fenced.

Mitigation measures described at the end of Chapter 2 state that if aspen stands or springs are fenced to exclude cattle and they contain the water source for the area, an alternate water source would be provided. Therefore, development of spring boxes and troughs are proposed on four springs (Reference Map 24) to meet watershed objectives.

Aspen Restoration

Aspen restoration activities are proposed on all known aspen stands totaling about 268 acres. See Appendix B for a complete list of aspen stands and proposed restoration activities. Specific actions common to all action alternatives include:

- Competing conifers of any size may be converted to snags or large woody material as needed.
- Competing conifers less than 7" dbh (9" dbh in Alternatives Three, Four and Six) may be precommercially thinned.
- Two hundred forty-five acres of aspen stands would be protected using one or more of the following methods: generally a 4-strand wire fence but occasionally an 8-foot fence, caging, slash barriers, buck and pole fence, or electric fence. Fencing generally would be 66 feet beyond the edge of the aspen. Protection methods would occur over five years.
- Protection methods would be monitored for effectiveness. When protection is determined to be unnecessary, protection methods would be removed.

Cottonwood Restoration

Cottonwood restoration activities are needed to restore this important component of the ecosystem (Reference Map 25). There are two historically remaining cottonwood sites within the

watershed. Ongoing planting of cottonwood cuttings is occurring within the watershed. Specific actions proposed under all action alternatives includes:

- protection of the existing decadent stand in Sage Hen Creek (about 1 acre) with an 8-foot fence;
- planting cuttings in identified riparian areas and protect with 5-6 foot cages;
- disallowing commercial harvest in cottonwood stand;
- precommercial thinning of conifers less than 7" dbh (9" dbh for Alternatives Three and Six) competing with cottonwood;
- creation of snags and large woody material (LWM) where needed from competing conifers greater than 7 " dbh.

Noxious Weed Treatments

Twelve noxious weed sites, (five Canada thistle, three Russian knapweed, two spotted knapweed and two Dalmatian toadflax) in the watershed are proposed for manual methods of treatment (hand pulling and grubbing) (Reference Map 27).

Reconfiguration of Dedicated Old Growth Areas 02011, 02012, 02015, 02016, and 02039

Existing boundaries of dedicated old growths 02011, 02012, 02015, 02016, and 02039 would be adjusted to provide boundaries on logical breaks and where boundaries are easily identified on the ground. This action would not relocate existing DOGs or affect the existing DOG network (see Figure 2-1).

Reconfiguration of Dedicated Old Growth Area 02017

About 75 acres (16%) of DOG 02017, which is classified as young forest multi-stratum, would be reallocated as part of the corresponding proposed replacement old growth. This would move this acreage into active management for development of future old growth. This action would not result in any changes in total acres of functional old growth habitat currently available in DOG 02017 because it reallocates an area that does not meet current old growth standards.

Treatments of Dedicated Old Growth (DOG)

DOGs 02015 and 02039 would be precommercial thinned as a pretreatment for prescribed burning. Conifers 9" dbh and smaller would be thinned to 18'x18' spacing with retained wildlife cover clumps. Generated slash would be lopped, handpiled and later burned. Prescribed burning would be accomplished through limited ground creep between burn piles. Acres of thinning are included under the total acres thinned in each alternative.

DOGs 02016 and 02017 have had prescribed fire introduced through the South Silvies Prescribed Burn CE. These DOGs would be burned under this project as part of Burn Block 6.

Designation and Treatment of Replacement Old Growth (ROG) and Pileated Woodpecker Feeding Areas

To meet Forest Plan direction of providing ROG areas and feeding areas, ROG areas and feeding areas for DOGs 02011, 02012, 02016, 02017, and 02039 are proposed for designation. DOG 01101 (Blue Mountain Ranger District) has a ROG already established outside of the watershed. These designations are needed to counter the results of loss of habitat for old growth dependent

species by having suitable replacement habitat. Long-term management strategies for each replacement area, which maintain or enhance the capability of timber stands to provide suitable old growth habitat in the future are proposed as follows:

ROG 02011

Acres: 170 acres (49% the size of corresponding DOG)
Seral Stage: Old Forest Multi Stratum (OFMS)
Treatment: Intermediate thin of the understory followed by a PCT to reduce competition stress on large tree component and move stand composition towards historic stand composition. Treat aspen inclusion to stimulate suckering and protect from browsing. Handpile and burn activity slash. A portion of this ROG is included in Burn Block 2, therefore natural fuels would also be reduced when the area is burned with landscape prescribed burning.

ROG 02012

Acres: 265 acres (55% the size of corresponding DOG)
Seral Stage: 50% OFMS, 50% Young Forest Multi Stratum (YFMS)
Treatment: Intermediate thin (168 acres) the understory and mid-canopy followed by a PCT (97 acres) of the understory to reduce competition stress on large tree component and move stand composition towards historic conditions. Treat aspen inclusion to stimulate suckering and protect from browsing. Handpile and burn activity slash. This ROG is included in Burn Block 2.

ROG 02015

These alternatives defer designation of a ROG for DOG 02015PW. No suitable adjacent areas exist within Silvies Canyon Watershed. In the future, planners should evaluate management opportunities when analyzing Silvies Valley Watershed.

ROG 02016

Acres: 267 acres (40% the size of corresponding DOG)
Seral Stage: 78% OFMS, 22% YFMS
Treatment: Commercial thinning of the mid-canopy ("thin from below") followed by a PCT of the understory to reduce competition stress on large tree component and improve the growth rates of retained trees to accelerate the development of old-growth structure. Handpile and burn activity slash. Portion of this ROG is included in Burn Block 6.

ROG 02017

Acres: 221 acres (77% the size of corresponding DOG)
Seral Stage: YFMS
Treatment: Commercial thinning ("thin from below") followed by a PCT of the understory to reduce competition stress on large tree component and improve the growth rates of retained trees to accelerate the development of old-growth structure. Handpile and burn activity slash. This ROG is included in Burn Block 7.

ROG 02039

Acres: 214 acres (55% the size of corresponding DOG)
Seral Stage: Stem Exclusion Closed Canopy (SEC)
Treatment: Commercial thinning ("thin from below") followed by a PCT of the understory to reduce competition between even-aged overstory trees, reduce stress on large tree component, and improve the growth rates of retained trees to accelerate the development of old-growth structure. Handpile and burn activity slash. This ROG is included in Burn Block 3.

Myrtle Creek Trail #308

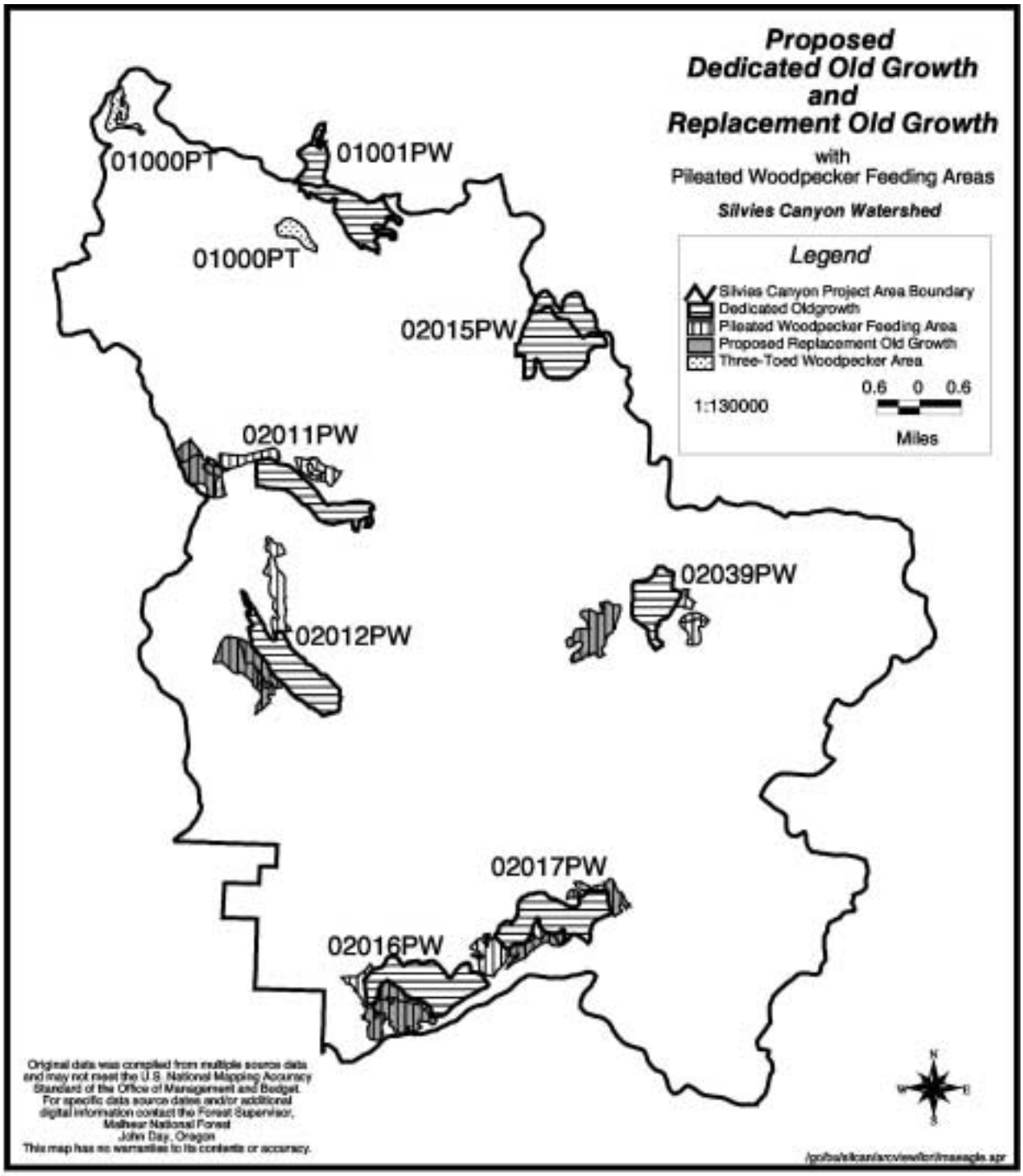

Figure 2-1. Silvies Canyon Proposed Dedicated Old Growth and Proposed Replacement Old Growth with Pileated Woodpecker Feeding Areas.

Alternative Two – The Proposed Action

The Proposed Action was developed to meet the purpose and need for the project. This proposal would move about 43,880 acres (67% of project area) in the project area towards historic ecosystem conditions with the use of commercial, noncommercial and precommercial activities. Prescribed burning would be utilized on 39,277 acres to move the area towards HRV (5-23 year fire cycle) and reduce the risk of large stand-replacement wildfires. Miles of open roads in the watershed would be reduced to 45% of current levels by closing and decommissioning one hundred forty-three miles.

The Proposed Action Alternative complies with the Malheur National Forest Land and Resource Management Plan except for the following:

- This alternative would require a non-significant, site-specific Forest plan amendment for reducing big game cover, habitat effectiveness index (HEI), and components of HEI below the Forest Plan standards or below existing conditions that do not meet standards.
- This alternative would require a non-significant, site-specific Forest plan amendment to allow harvest within the 30-acre nest habitat surrounding goshawk nest trees.
- This alternative would require a non-significant, site-specific Forest plan amendment for reconfiguration of Dedicated Old Growth areas (see section titled "Projects Common to All Action Alternatives").

Access and Travel Management

Roads selected for closure and decommissioning in this alternative are those roads that the IDT identified as needing to be closed to meet Forest Plan road density standards as well as address fish and wildlife habitat issues on specific roads. Three hundred six roads totaling 143 miles would be permanently closed with an earth berm, sign, or gate; seasonally closed with a sign; or decommissioned (Reference Maps 1 and 2).

Table 2-1. Proposed Action Road Closures.

Type of Closure	Roads	Miles
Permanent Closure	212	75
Seasonal Closure	85	62
Decommission	5	3
Signed Year Round Closure	4	3
Total	**306**	**143**

Road reconstruction and temporary road construction activities are listed under vegetation condition activities because these activities are associated with proposed timber harvest.

Activities Proposed Within The Myrtle-Silvies Roadless Area

Proposed activities within the Myrtle-Silvies Roadless Area include:

- prescribed burning activities on 5526 acres (Fuel Block 6),
- riparian habitat (spring) restoration activities on two springs,
- permanent closure of 10 roads totaling 1.51 miles
- Seasonal closure of 6 roads totaling 0.58 miles.

For more information on these activities please refer to the sections titled "Access and Travel Management," "Landscape Scale Fuels Treatment" and "Projects Common to All Action Alternatives."

Aspen Restoration

Aspen restoration activities common to all Action alternatives were listed in section titled "Projects Common to All Action Alternatives." Additional actions specific to this alternative include (Reference Maps 11 and 12):

Aspen stands located outside RHCAs (121 acres):

- Competing conifers less than 21" dbh may be commercially harvested where practical.
- Competing conifers of any size may be converted to snags or large woody material as needed.
- Competing conifers less than 7" dbh may be precommercially thinned.

Juniper Reduction

Juniper reduction is proposed to reduce juniper densities and distribution towards historical levels. Some trees 12-18" dbh with old growth characteristics and all trees over 18" dbh would be left. Juniper reduction would be accomplished commercially (where economical) and non-commercially on 537 acres (Reference Maps 11 and 12).

Commercial Harvesting and Associated Fuels Disposal Activities

Commercial harvesting and associated fuels disposal activities (and precommercial thinning where commercial harvesting is determined non-viable by current market conditions) are proposed on 13,222 acres (Reference Maps 11 and 12 and Appendix B). Approximately 50,000 CCF or 26 MMBF would be harvested on six or more timber sales over three to five years. Specifically, the Forest Service proposes to commercial thin 5,885 acres, and intermediate thin 7,216 acres. Commercial harvest activities may take place within 121 acres of aspen stands outside RHCAs (see above) to accomplish restoration objectives. See Table 2-2.

Trees less than 21" dbh would be harvested to reduce stocking levels, reduce the incidence of disease and insect activity, and move species composition toward a historical range. Trees greater than 21" dbh would be maintained to provide large tree habitat for wildlife and late successional stand structure. Exceptions would be trees considered hazardous to worker or public safety. Within mixed conifer sites the main goal would be reducing the levels of white fir and Douglas-fir while increasing the growth of ponderosa pine. Within ponderosa pine sites the goal would be to increase the growth rates by reducing the number of trees on the site. Commercial harvest would take place in 2048 acres of LOS stands; however, stand structures would be maintained and viability would be enhanced. Commercial harvest would be accomplished using ground-based equipment such as a mechanical harvester, tractor or rubber-tired skidder. At least 80% of the harvest-generated logging slash would be removed to the landing for disposal by burning.

Treatments in Silvies River Bald Eagle Management Area

To protect and maintain stand characteristics in the Silvies River Bald Eagle Management Area (BEMA), silvicultural treatments would consist of precommercial thinning of the understory on 144 acres and commercially thinning 29 additional acres within close proximity of the bald eagle nest. Acres of thinning are included under the total acres thinned in each alternative. Fuels

management would consist of introducing low intensity prescribed fire into about 174 acres of forest habitat within the BEMA. These acres are a portion of Burn Block 12. All activities would be done outside of the bald eagle nesting season (see section on Design Criteria and Mitigation).

Road Maintenance and Temporary Access Roads

Road maintenance and temporary access roads are necessary to access proposed harvest units. Approximately 164 miles of road used for harvest activities would have road maintenance activities to varying degrees, dependent upon severity of road damage, erosion and sediment production, and designed maintenance level. Most commonly, maintenance would consist of hazard tree removal and brushing for sight distance, although some ground-disturbing activity would be necessary. Maintenance of existing drainage structures may be necessary to assure the integrity of their design function. Stricter measures (placement of rock, site specific drainage structures, and sediment fences) would be taken on specific roads with chronic sediment or erosion concerns to minimize water concentrations and related effects on surroundings.

No new permanent road construction is proposed. Approximately 3.5 miles of temporary access roads would be constructed (Reference Maps 11 and 12). These temporary access roads would be water barred and closed, and scarified and seeded with weed free seed as needed to meet NFMA requirements at the end of the project. The intent is to close these temporary access roads to motorized travel after harvest activities are completed.

Table 2-2. Proposed Action Commercial Harvest Acres By Treatment.

Treatment Prescription	Acres
Commercial Thin	5885
Intermediate Thin	7216
Aspen Restoration	121
Total	**13,222**

Post and Pole

Post and pole sales are proposed on 452 acres of lodgepole pine stands to reduce the risk of large scale insect outbreaks (Reference Maps 11 and 12). These lodgepole pine stands are susceptible to mountain pine beetle because the size of trees present in the stand and stand densities provide ideal beetle habitat. The purpose of this activity is to increase stand health by reducing the density of lodgepole pines.

Precommercial Thinning and Associated Fuels Treatment

Precommercial thinning and associated fuels treatment activities are proposed for 15,496 acres (Reference Maps 11 and 12 and Appendix B). The purpose of these activities is to reduce the number of trees less than 7" dbh, reduce the incidence and scale of disease and insect activity, and move species composition toward historical ranges. Within mixed conifer sites, the main goal would be the reduction in the proportion of white fir and Douglas-fir, while increasing the proportion and growth of ponderosa pine. Within ponderosa pine sites, the goal would be increasing the growth of ponderosa pine by reducing the number of trees on the site. These sites would be dominated by ponderosa pine but with more open tree spacing. Fuels would be treated either mechanically or manually to reduce fuel accumulations, allowing for the use of prescribed fire.

Landscape Scale Fuels Treatment

The Proposed Action proposes 39,277 acres within twelve fuel blocks for landscape scale fuels treatment activities (Reference Map 23).

Prescribed fire would be the main tool in removing the excess fuel accumulations and reducing the high risk of large stand-replacement fires. Underburning (the use of low intensity ground fire) would be common for managing mixed ponderosa pine and associated fir stands to reduce fire encroachment and perpetuate ponderosa pine. The objectives of fuels management are to reduce the fire hazard to a level where cost effective resource protection is possible should a wildfire ignite and to improve safety for firefighters.

Roads and natural boundaries would be the main fire control lines however, some areas may need hand- or plow-constructed line prior to ignition. Implementation of fuel treatments would occur over the next 15 years with periodic review as required by NEPA (see Chatper 2, Table 2-21 for the proposed implementation schedule). The exact timing and acreage would be determined by funding, availability of personnel and variations in weather patterns. Table 2-3 lists the acres by fuel block and burn priority.

Table 2-3. Proposed Action Fuel Blocks.

Fuel Block#	Acres	Priority
1	2484	6
2	5298	7
3	5023	3
4	2100	7
5	7798	5
6	5526	2
7	3988	1
8	940	2
9	895	1
10	3419	4
11	696	1
12	1110	2
Total	**39277**	

Alternative Three

This alternative was developed in response to an agreement made to analyze a non-harvest restoration alternative during an informal appeal resolution for the Crater Vegetation and Watershed Management Project EA and Decision Notice July 26, 1999, as well as comments made during the scoping process. Alternative Three proposes the greatest quantity of non-commercial restoration activities than any of the action alternatives. Alternative Three responds minimally to ecosystem health, watershed improvement, and economic objectives because it does not treat all sizes of trees. It treats those sizes of trees (less than 9 inches dbh) that are considered non-commercial.

This proposal would move about 43,212 acres (66% of the project area) in the project area towards historical ecosystem conditions with the use of noncommercial and precommercial activities. Stand compositions and densities of trees less than 9" dbh would move toward more resilient, historic levels. However, trees greater than 9" dbh would not be treated. Prescribed burning would be utilized on 39,277 acres to move the area towards HRV (5-23 year fire cycle) and reduce the risk of stand-replacement wildfires. Miles of open roads in the watershed would be reduced to 41% of current levels by closing and decommissioning one hundred sixty miles.

Alternative Three complies with the Malheur National Forest Land and Resource Management Plan except for the following:

- This alternative may require a non-significant, site-specific Forest plan amendment for precommercial thinning trees greater than 7" dbh. This activity does not meet forest-wide standards for utilization (Standard #97).
- This alternative would require a non-significant, site-specific Forest plan amendment for reconfiguration of DOG areas (see section titled "Projects Common to All Action Alternatives" on page 2-3).

Access and Travel Management

Roads selected for closure and decommissioning in this project are those roads that the IDT identified as needing to be closed to meet 1999 Forest Plan road density standards as well as to move towards the desired future condition road densities (1.0 mi/mi^2 on winter range and 1.5 mi/mi^2 on summer range) as described in the ROD for the Forest Plan (pg. 23). Additional specific roads having negative impacts on fish and wildlife habitat were also selected. Three hundred forty-five roads totaling 160 miles would be permanently closed with an earth berm, sign, or gate; seasonally closed with a sign; or decommissioned (Reference Maps 3 and 4).

Table 2-4. Alternative Three Road Closures.

Type of Closure	Roads	Miles
Permanent Closure	273	105
Seasonal Closure	27	25
Decommission	35	25
Signed Year Round Closure	10	5
Total	**345**	**160**

Activities Proposed Within The Myrtle-Silvies Roadless Area

Proposed activities within the Myrtle-Silvies Roadless Area include:

- prescribed burning activities on 5526 acres within fuel block 6;
- precommercial thinning and associated fuels treatment on 729 acres of potential bald eagle winter roost areas;
- riparian habitat (spring) restoration activities;
- permanent closure of 18 roads totaling 2.56 miles;
- decommission of two roads totaling 0.30 miles; and
- seasonal closure of 2 roads totaling 0.16 miles.

For more information on these activities please refer to the following sections: Access and Travel Management, Riparian Habitat, Water Quality, and Fish Habitat, and Vegetation Condition.

Aspen Restoration

Aspen restoration activities are proposed on 268 acres (Reference Maps 13 and 14). Specific actions under this alternative were listed in section titled "Projects Common to All Action Alternatives" on page 2-3.

Juniper Reduction

Juniper reduction is proposed to reduce juniper densities and distribution towards historical levels. Some trees 12-18" dbh with old growth characteristics and all trees over 18" dbh would be left. Juniper reduction would be accomplished non-commercially on 515 acres by cutting and leaving, and lopping and scattering (Reference Maps 13 and 14.

Precommercial Thinning and Associated Fuels Treatment

Precommercial thinning and associated fuels treatment activities are proposed for 16,019 acres (Reference Maps 13 and 14). The purpose of these activities is to reduce the number of trees less than 9" dbh, reduce the incidence and scale of disease and insect activity, and move species composition toward historical ranges. The objectives for precommercial thinning are the same as those mentioned in the Proposed Action. Fuels would be treated either mechanically or manually to reduce fuel accumulations, allowing for the use of prescribed fire.

Within the two potential eagle roost stands, the main goal of precommercial thinning would be the reduction in the proportion of white fir and Douglas-fir, while increasing the proportion and growth of ponderosa pine. Fuels would be treated manually to reduce fuel accumulations.

Treatments in Silvies River Bald Eagle Management Area

To protect and maintain stand characteristics in the Silvies River Bald Eagle Management Area (BEMA), silvicultural treatments would consist of precommercial thinning of the understory on 173 acres within close proximity of the bald eagle nest. Acres of thinning are included under the total acres thinned in each alternative. Fuels management would consist of introducing low intensity prescribed fire into about 174 acres of forest habitat within the BEMA. These acres are a portion of Burn Block 12. All activities would be done outside of the bald eagle nesting season (see section on Design Criteria and Mitigation).

Landscape Scale Fuels Treatment

Alternative Three proposes 39,277 acres within twelve fuel blocks for landscape scale fuels treatment activities (Reference Map 23). The objectives, project design and specific fuel blocks are the same as those in the Proposed Action.

Alternative Four

Alternative Four was developed in response to comments during the scoping process. Alternative Four would move about 44,450 acres (68% if the project area) in the project area toward historical ecosystem conditions with the use of commercial, noncommercial and precommercial activities. Prescribed burning would be utilized on 39,277 acres to move the area towards HRV (5-23 year fire cycle) and reduce the risk of large stand-replacement wildfires. Miles of open roads in the watershed would be reduced to 41% of current levels by closing and decommissioning one hundred sixty miles.

Alternative Four complies with the Malheur National Forest Land and Resource Management Plan except for the following:

- This alternative would require a non-significant, site-specific Forest plan amendment for reducing big game cover, habitat effectiveness index (HEI), and components of HEI below the Forest Plan standards or below existing conditions that do not meet standards.
- This alternative would require a non-significant, site-specific Forest plan amendment to allow harvest within the 30-acre nest habitat surrounding goshawk nest trees.
- This alternative would require a non-significant, site-specific Forest Plan amendment for cutting trees greater than 21" dbh within aspen stands.
- This alternative would require a non-significant, site-specific Forest Plan amendment for reconfiguration of DOG areas (see section titled "Projects Common to All Alternatives").

Access and Travel Management

Roads selected for closure and decommissioning in this project are those roads that the IDT identified as needing to be closed to meet 1999 Forest Plan road density standards as well as to move towards the desired future condition road densities (1.0 mi/mi^2 on winter range and 1.5 mi/mi^2 on summer range) as described in the ROD for the Forest Plan (pg. 23). Additional specific roads having negative impacts on fish and wildlife habitat were also selected. Three hundred forty-five roads totaling 160 miles would either be permanently closed with an earth berm, sign, or gate; seasonally closed with a sign; or decommissioned (Reference Maps 3 and 4).

Table 2-5. Alternative Four Road Closures.

Type of Closure	Roads	Miles
Permanent Closure	273	105
Seasonal Closure	27	25
Decommission	35	25
Signed Year Round Closure	10	5
Total	**345**	**160**

Road reconstruction and temporary road construction activities are listed under vegetation condition activities because these activities are associated with proposed timber harvest.

Activities Proposed Within The Myrtle-Silvies Roadless Area

Proposed activities within the Myrtle-Silvies Roadless Area include:

- prescribed burning activities on 5526 acres within fuel block 6;
- precommercial thinning and associated fuels treatment on 729 acres of potential bald eagle winter roost areas;
- riparian habitat (spring) restoration activities;
- permanent closure of 18 roads totaling 2.56 miles;
- decommissioning of two roads totaling 0.30 miles; and
- Seasonal closure of two roads totaling 0.16 miles.

For more information on these activities please refer to the following sections, Access and Travel Management, Riparian Habitat, Water Quality, and Fish Habitat, and Vegetation Condition.

Aspen Restoration

Aspen restoration activities are proposed on 268 acres (Reference Maps 15 and 16). Aspen restoration activities common to all Action alternatives were listed in section titled "Projects Common to All Action Alternatives" on page 2-3. Additional actions specific to this alternative include:

Aspen stands outside RHCAs (121 acres):

- Competing conifers of any size may be converted to snags or large woody material as needed.
- Competing conifers of any size may be commercially harvested where practical.
- Competing conifers less than 7" dbh may be precommercially thinned.

Aspen stands inside RHCAs (147 acres):

- Competing conifers less than 9" dbh may be precommercially thinned.
- Competing conifers less than 21" dbh may be converted to large woody material and placed into RHCA.
- Competing conifers of any size may be converted into snags.

Juniper Reduction

Juniper reduction is proposed to reduce juniper densities and distribution towards historical levels. Some trees 12-18" dbh with old growth characteristics and all trees over 18" dbh would be left. Juniper reduction would be accomplished commercially (where viable) and non-commercially on 715 acres (Reference Maps 15 and 16).

Commercial Harvesting and Associated Fuels Disposal

Commercial harvesting and associated fuels disposal activities (and precommercial thinning where commercial harvesting is not viable) are proposed on 15,701 acres (Reference Maps 15 and 16). Approximately 59,615 CCF or 31 MMBF would be harvested on several timber sales over several years. Specifically, the Forest Service proposes to:

- Commercial thin 7,107 acres, and intermediate thin 8,473 acres (commercial harvest would take place in 2,327 acres of LOS stands)

- Commercial harvest 121 acres of aspen stands outside RHCAs (trees greater than 21" dbh may be harvested)

Harvest activity details are the same as those related under the Proposed Action.

Treatments in Silvies River Bald Eagle Management Area

To protect and maintain stand characteristics in the Silvies River Bald Eagle Management Area (BEMA), silvicultural treatments would consist of commercial thinning of the understory on 173 acres within close proximity of the bald eagle nest. Acres of thinning are included under the total acres thinned in each alternative. Fuels management would consist of introducing low intensity prescribed fire into about 174 acres of forest habitat within the BEMA. These acres are a portion of Burn Block 12. All activities would be done outside of the bald eagle nesting season (see section on Design Criteria and Mitigation).

Road Maintenance and Temporary Access Roads

Road maintenance and temporary access are necessary to access proposed harvest units.

- Approximately 192 miles of road used for harvest activities would have road maintenance activities.
- No new permanent road construction is proposed.
- Approximately 3.5 miles of temporary access roads would be constructed (Reference Maps 15 and 16).

Road maintenance and temporary access road details are the same as those described under the Proposed Action.

Table 2-6. Alternative Four Commercial Harvest Acres by Treatment.

Treatment Prescription	Acres
Commercial Thin	7107
Intermediate Thin	8473
Aspen Restoration	121
Total	**15,701**

Post and Pole

Post and pole sales are proposed on 452 acres of lodgepole pine stands (Reference Maps 15 and 16). The objectives are the same as those mentioned in the Proposed Action.

Precommercial Thinning and Associated Fuels Treatment

Precommercial thinning and associated fuels treatment activities are proposed for 16,725 acres (Reference Maps 15 and 16 and Appendix B). The purpose and objectives for precommercial thinning are the same as those mentioned in the Proposed Action. Fuels would be treated either mechanically or manually to reduce fuel accumulations, allowing for the use of prescribed fire.

Proposed precommercial thinning within the two potential eagle roost stands is the same as described in Alternative Three. Fuels would be treated manually.

Landscape Scale Fuels Treatment

Alternative Four proposes 39,277 acres within twelve fuel blocks for landscape scale fuels treatment activities (Reference Map 23). The objectives, project design and specific fuel blocks are the same as those in the Proposed Action.

Alternative Five

This alternative was developed in response to comments during the scoping process. This alternative would move about 35,248 acres (54% of the project area) in the project area towards historical ecosystem conditions with the use of commercial, noncommercial and precommercial activities. Prescribed burning would be utilized on 25,311 acres to move the area towards HRV (5-23 year fire cycle) and reduce the risk of large stand-replacement wildfires. Miles of open roads in the watershed would be reduced to 74% of current levels by closing and decommissioning thirty-seven miles.

Alternative Five complies with the Forest Plan except for the following:

- This alternative would require a non-significant, site-specific Forest plan amendment for reducing big game cover and components of HEI below the Forest Plan standards or below existing conditions that do not meet standards.
- This alternative would require a non-significant, site-specific Forest plan amendment to allow harvest within the 30-acre nest habitat surrounding goshawk nest trees.
- This alternative would require a non-significant, site-specific Forest Plan amendment for reconfiguration of DOG areas (see section titled "Projects Common to All Alternatives").

Access and Travel Management

Roads selected for closure and decommissioning in this project are those short spur roads no longer needed for management activities, and specific roads the IDT identified as needing to be closed to meet Forest Plan road density standards (Reference Maps 5 and 6). One hundred twenty-five roads totaling 37 miles would be permanently closed with an earth berm, sign, or gate; seasonally closed with a sign; or decommissioned.

Table 2-7. Alternative Five Road Closures.

Type of Closure	Roads	Miles
Permanent Closure	104	23
Seasonal Closure	4	4
Decommission	16	9
Signed Year Round Closure	1	1
Total	**125**	**37**

Road reconstruction and temporary road construction activities are listed under vegetation condition activities because these activities are associated with proposed timber harvest.

Activities Proposed Within The Myrtle-Silvies Roadless Area

Proposed activities within the Myrtle-Silvies Roadless Area include:

- prescribed burning activities on 5,526 acres within fuel block 6;

- precommercial thinning and associated fuels treatment on 729 acres of potential bald eagle winter roost areas;
- riparian habitat (spring) restoration activities;
- permanent closure of two roads totaling 0.09 miles; and
- decommissioning of two roads totaling 0.30 miles.

For more information on these activities please refer to the following sections: Access and Travel Management, Riparian Habitat, Water Quality, and Fish Habitat, and Vegetation Condition.

Aspen Restoration

Aspen restoration activities are proposed on 268 acres. Specific actions are the same as those in the Proposed Action.

Juniper Reduction

Juniper reduction is proposed to reduce juniper densities and distribution towards historical levels. Some trees 12-18" dbh with old growth characteristics and all trees over 18" dbh would be left. Juniper reduction would be accomplished commercially (where economical) and non-commercially on 535 acres (Reference Maps 17 and 18).

Commercial Harvesting and Associated Fuels Disposal

Commercial harvesting and associated fuels disposal activities (and precommercial thinning where commercial harvesting is not viable) are proposed on 9,920 acres (Reference Maps 17 and 18 and Appendix B). Approximately 36,538 CCF or 19 MMBF would be harvested on several timber sales over several years. Specifically, the Forest Service proposes to:

- Commercial thin 4,411 acres, and intermediate thin 5,388 acres (commercial harvest would take place in 1,267 acres of LOS stands).
- Commercial harvest 121 acres of aspen stands outside RHCAs (trees greater than 21" dbh would not be harvested)

Harvest activity details are the same as those described under the Proposed Action.

Treatments in Silvies River Bald Eagle Management Area

To protect and maintain stand characteristics in the Silvies River Bald Eagle Management Area (BEMA), silvicultural treatments would consist of precommercial thinning of the understory on 144 acres and commercially thinning 29 additional acres within close proximity of the bald eagle nest. Acres of thinning are included under the total acres thinned in each alternative. Fuels management would consist of introducing low intensity prescribed fire into about 174 acres of forest habitat within the BEMA. These acres are a portion of Burn Block 12. All activities would be done outside of the bald eagle nesting season (see section on Design Criteria and Mitigation).

Road Maintenance and Temporary Access Roads

Road maintenance and temporary access roads are necessary to access proposed harvest units.

- Approximately 163 miles of road used for harvest activities would have road maintenance activities.
- No new permanent road construction is proposed.

- Approximately 2.8 miles of temporary access roads would be constructed (Reference Maps 17 and 18).

Road maintenance and temporary access road details are the same as those described under the Proposed Action.

Table 2-8. Alternative Five Commercial Harvest Acres By Treatment.

Treatment Prescription	Acres
Commercial Thin	4411
Intermediate Thin	5388
Aspen Restoration	121
Total	**9,920**

Post and Pole

Post and pole sales are proposed on 452 acres of lodgepole pine stands (Reference Maps 17 and 18). The objectives are the same as those mentioned in the Proposed Action.

Precommercial Thinning and Associated Fuels Treatment

Precommercial thinning and associated fuels treatment activities are proposed for 13,733 acres (Reference Maps 17 and 18 and Appendix B). The purpose and objectives for precommercial thinning are the same as those mentioned in the Proposed Action. Fuels would be treated either mechanically or manually to reduce fuel accumulations, allowing for the use of prescribed fire.

Proposed precommercial thinning within the two potential eagle roost stands is the same as described in Alternative Three. Fuels would be treated manually.

Landscape Scale Fuels Treatment

Alternative Five proposes 25,311 acres within seven fuel blocks for landscape scale fuels treatment activities (Reference Map 23). The objectives and project design are the same as those mentioned in the Proposed Action. Table 2-9 lists the acres per fuel block. Burn priority is the same as listed under the Proposed Action.

Table 2-9. Alternative Five Fuel Blocks.

Fuel Block#	Acres
2	5298
5	7798
6	5526
7	3988
9	895
11	696
12	1110
Total	**25,311**

Alternative Six

This alternative was developed in response to management concerns over availability of appropriated funding. In the DEIS this alternative was number Ten. This proposal would move about 38,300 acres (58% of the project area) in the project area towards historical ecosystem conditions with the use of noncommercial and precommercial activities. In ponderosa pine stands, the goal of moving stand compositions and densities of smaller diameter trees (less than 9" dbh) toward more resilient, historic levels would be attempted with the use of prescribed fire. Prescribed burning would be utilized on 36,454 acres to move the area towards HRV (5-23 year fire cycle) and reduce the risk of large stand-replacement wildfires. Miles of open roads in the watershed would be reduced to 61% of current levels by closing and decommissioning eighty-seven miles. Roads identified as contributing sediment to streams that are not closed would be reconstructed.

Alternative Six complies with the Forest Plan except for the following:

- This alternative may require a non-significant, site-specific Forest Plan amendment for precommercial thinning trees greater than 7" dbh. This activity does not meet forest-wide standards for utilization (Standard #97).
- This alternative would require a non-significant, site-specific Forest Plan amendment for reconfiguration of DOG areas (see section titled "Projects Common to All Action Alternatives").

Access and Travel Management

Roads selected for closure, decommissioning or reconstruction in this project are those roads that the IDT identified as having a negative impact on fish and wildlife habitat, and where actions would be necessary for restoration of watersheds. Additional roads determined unnecessary for management activities or that need to be closed to meet 1999 Forest Plan road density standards (Reference Maps 7 and 8) were also selected. Two hundred forty-seven roads totaling 87 miles would either be permanently closed with an earth berm, sign, or gate; seasonally closed with a sign; or decommissioned.

Table 2-10. Alternative Six Road Closures.

Type of Closure	Roads	Miles
Permanent Closure	222	69
Seasonal Closure	7	10
Decommission	16	7
Signed Year Round Closure	2	1
Total	**247**	**87**

Road maintenance activities are proposed for portions of Forest Roads 3100286 (0.83 miles), 3100860 (2.33 miles), 3125971 (1.81 miles), and 3130129 (2.72 miles). These specific roads were identified as contributing sediment to streams and are proposed for maintenance because they were determined necessary for access. Forest Road 3100860 would be seasonally closed during the wet season to protect the road from further damage.

Roads would have road maintenance activities to varying degrees, dependent upon severity of road damage, erosion and sediment production, and designed maintenance level. Some ground-disturbing activity would be necessary. Maintenance of existing drainage structures may be necessary to assure the integrity of their design function. Stricter measures (placement of rock, site specific drainage structures, and sediment fences) would be taken on specific roads with chronic sediment or erosion concerns to minimize water concentrations and related effects on surroundings.

Road reconstruction activities are proposed for Forest Road 3125912 (2.12 miles). This specific road was identified as contributing sediment to a stream and is proposed for reconstruction because it requires realignment and was determined necessary for access.

Activities Proposed Within The Myrtle-Silvies Roadless Area

Proposed activities within the Myrtle-Silvies Roadless Area include:

- prescribed burning activities on 5,526 acres within fuel block 6;
- precommercial thinning and associated fuels treatment on 729 acres of potential bald eagle winter roost areas;
- riparian habitat (spring) restoration activities;
- permanent closure of 10 roads totaling 1.51 miles; and
- decommissioning of two roads totaling 0.30 miles.

For more information on these activities refer to the following sections: Access and Travel Management, Riparian Habitat, Water Quality, and Fish Habitat, and Vegetation Condition.

Aspen Restoration

Aspen restoration activities are proposed on 268 acres (Reference Maps 19 and 20). Specific actions under this alternative are the same as those listed under Alternative Three.

Juniper Reduction

Juniper reduction is proposed to reduce juniper (less than 18" dbh) densities and distribution towards historical levels (Reference Maps 19 and 20). Juniper reduction would be accomplished within fuel blocks using prescribed fire.

Precommercial Thinning and Associated Fuels Treatment

Precommercial thinning and associated fuels treatment activities are proposed for 10,738 acres (Reference Maps 19 and 20 and Appendix B). The purpose and objectives for precommercial thinning are the same as those mentioned in Alternative Three. Fuels would be treated either mechanically or manually to reduce fuel accumulations, allowing for the use of prescribed fire.

Proposed precommercial thinning within the two potential eagle roost stands is the same as described in Alternative Three. Fuels would be treated manually.

Treatments in Silvies River Bald Eagle Management Area

To protect and maintain stand characteristics in the Silvies River Bald Eagle Management Area (BEMA), silvicultural treatments would consist of precommercial thinning of the understory on 173 acres within close proximity of the bald eagle nest. Acres of thinning are included under the total acres thinned in each alternative. Fuels management would consist of introducing low

intensity prescribed fire into about 174 acres of forest habitat within the BEMA. These acres are a portion of Burn Block 12. All activities would be done outside of the bald eagle nesting season (see section on Design Criteria and Mitigation).

Landscape Scale Fuels Treatment

Alternative Six proposes 33,374 acres within ten fuel blocks for landscape scale fuels treatment activities (Reference Map 23). The objectives and project design are the same as those mentioned in the Proposed Action. Table 2-11 lists the acres per fuel block. Burn priority is the same as listed under the Proposed Action.

Table 2-11. Alternative Six Fuel Blocks.

Fuel Block#	Acres
2	5298
3	5023
4	2100
5	7798
6	5526
7	3988
8	940
9	895
11	696
12	1110
Total	**33,374**

Alternative Seven - The Preferred Alternative

The Preferred Alternative was developed in response to management concerns on the issues presented in Chapter 1. The Preferred Alternative would move about 44,450 acres (68% of the project area) in the project area toward historical ecosystem conditions with the use of commercial, noncommercial and precommercial activities. Prescribed burning would be utilized on 39,277 acres to move the area towards HRV (5-23 year fire cycle) and reduce the risk of stand-replacement wildfires. Miles of open roads in the watershed would be reduced to 61% of current levels by closing and decommissioning eighty-seven miles. Roads identified as contributing sediment to streams that are not closed would be reconstructed.

Alternative Seven complies with the Forest Plan except for the following:

- This alternative would require a non-significant, site-specific Forest plan amendment for reducing big game cover, habitat effectiveness index (HEI), and components of HEI below the Forest Plan standards or below existing conditions that do not meet standards.
- This alternative would require a non-significant, site-specific Forest plan amendment to allow harvest within the 30-acre nest habitat surrounding goshawk nest trees.
- This alternative would require a non-significant, site-specific Forest Plan amendment for reconfiguration of DOG areas (see section titled "Projects Common to All Action Alternatives").

Access and Travel Management

Roads selected for closure, decommissioning or reconstruction in this project are those roads that the IDT identified as having a negative impact on fish and wildlife habitat, and where actions would be necessary for restoration of watersheds. Additional roads determined unnecessary for management activities or that need to be closed to meet 1999 Forest Plan road density standards were also selected. Two hundred forty-seven roads totaling 87 miles would be permanently closed with an earth berm, sign, or gate; seasonally closed with a sign; or decommissioned (Reference Maps 9 and 10).

Table 2-12. Preferred Alternative Road Closures.

Type of Closure	Roads	Miles
Permanent Closure	222	69
Seasonal Closure	7	10
Decommission	17	11
Signed Year Round Closure	2	1
Total	**247**	**87**

The Preferred Alternative also proposes to decommission about 4 miles of Forest Road 3100035. This is the portion of the 3100035 road that was closed under the Forest Plan, breached, and closed again in 2001. Currently this road is closed to motorized access. However the mere presence of the road encourages motorized vehicles to ford the Silvies River and travel into the Myrtle-Silvies Roadless Area. Additionally, the southwest portion of the road accesses the Myrtle-Silvies Roadless Area from private property. This alternative would decommission about 2 miles on both ends of the 3100035 road to discourage motorized vehicles from entering the Myrtle-Silvies Roadless Area.

Road maintenance activities are proposed for portions of Forest Roads 3100286 (0.83 miles), 3100860 (2.33 miles), 3125971 (1.81 miles), and 3130129 (2.72 miles). These specific roads were identified as contributing sediment to streams and are proposed for maintenance because they were determined necessary for access. Forest Road 3100860 would be seasonally closed during the wet season to protect the road from further damage.

Road reconstruction activities are proposed for Forest Road 3125912 (2.12 miles). This specific road was identified as contributing sediment to a stream and is proposed for reconstruction because it requires realignment and was determined necessary for access.

Additional road maintenance activities (associated with proposed timber harvest) as well as road maintenance activity details are disclosed in the vegetation condition activities.

Activities Proposed Within The Myrtle-Silvies Roadless Area

Proposed activities within the Myrtle-Silvies Roadless Area include:

- prescribed burning activities on 5,526 acres within fuel block 6;
- precommercial thinning and associated fuels treatment on 729 acres of potential bald eagle winter roost areas;
- riparian habitat (spring) restoration activities;
- permanent closure of 10 roads totaling 1.51 miles; and
- decommissioning of three roads totaling 4.30 miles.

For more information on these activities please refer to the following sections: Access and Travel Management, Riparian Habitat, Water Quality, and Fish Habitat, and Vegetation Condition.

Aspen Restoration

Aspen restoration activities are proposed on 268 acres (Reference Maps 15 and 16). Aspen restoration activities common to all Action alternatives were listed in section titled "Projects Common to All Action Alternatives." Additional actions specific to this alternative include:

Aspen stands outside RHCAs (121 acres):

- Competing conifers greater than 21" dbh may be converted to snags or large woody material as needed.
- Competing conifers less than 21" dbh may be commercially harvested where practical.
- Competing conifers less than 7" dbh may be precommercially thinned.

Aspen stands inside RHCAs (147 acres):

- Competing conifers less than 9" dbh may be precommercially thinned.
- Competing conifers less than 21" dbh may be converted to large woody material and placed into RHCA.
- Competing conifers of any size may be converted into snags.

Juniper Reduction

Juniper reduction is proposed to reduce juniper densities and distribution towards historical levels. Some trees 12-18" dbh with old growth characteristics and all trees over 18" dbh would be left. Juniper reduction will be accomplished commercially (where viable) and non-commercially on 715 acres (Reference Maps 15 and 16).

Commercial Harvesting and Associated Fuels Disposal

Commercial harvesting and associated fuels disposal activities (and precommercial thinning where commercial harvesting is not viable) are proposed on 15,701 acres (Reference Maps 15 and 16 and Appendix B). Approximately 59,615 CCF or 31 MMBF would be harvested on several timber sales over several years. Specifically, the Forest Service proposes to commercial thin 7,107 acres, and intermediate thin 8,473 acres. Commercial harvest activities would take place in 121 acres of aspen stands to accomplish restoration objectives (see Table 2-13). Commercial harvest would take place in 2,327 acres of LOS stands; however, stand structures would be maintained and viability would be enhanced. Harvest activity details are the same as those related under the Proposed Action.

Treatments in Silvies River Bald Eagle Management Area

To protect and maintain stand characteristics in the Silvies River Bald Eagle Management Area (BEMA), silvicultural treatments would consist of commercial thinning of the understory on 173 acres within close proximity of the bald eagle nest. Acres of thinning are included under the total acres thinned in each alternative. Fuels management would consist of introducing low intensity prescribed fire into about 174 acres of forest habitat within the BEMA. These acres are a portion of Burn Block 12. All activities would be done outside of the bald eagle nesting season (see section on Design Criteria and Mitigation).

Road Maintenance and Temporary Access Roads

Road maintenance and temporary access roads are necessary to access proposed harvest units.

- Approximately 192 miles of road used for harvest activities would have road maintenance activities.
- No new permanent road construction is proposed.
- Approximately 3.5 miles of temporary access roads would be constructed (Reference Maps 15 and 16).

Road maintenance and temporary access road details are the same as those described under the Proposed Action.

Table 2-13. Preferred Alternative Commercial Harvest Acres By Treatment.

Treatment Prescription	Acres
Commercial Thin	7107
Intermediate Thin	8473
Aspen Restoration	121
Total	**15,701**

Post and Pole

Post and pole sales are proposed on 452 acres of lodgepole pine stands (Reference Maps 15 and 16). The objectives are the same as those mentioned in the Proposed Action.

Precommercial Thinning and Associated Fuels Treatment

Precommercial thinning and associated fuels treatment activities are proposed for 16,723 acres (Reference Maps 15 and 16 and Appendix B). The purpose and objectives for precommercial thinning are the same as those mentioned in the Proposed Action. Fuels would be treated either mechanically or manually to reduce fuel accumulations, allowing for the use of prescribed fire.

Proposed precommercial thinning within the two potential eagle roost stands is the same as described in Alternative Three. Fuels would be treated manually.

Landscape Scale Fuels Treatment

The Preferred Alternative proposes 39,277 acres within twelve fuel blocks for landscape scale fuels treatment activities (Reference Map 23). The objectives, project design and specific fuel blocks are the same as those in the Proposed Action.

Alternative Seven-A

Alternative Seven-A was developed in response to comments made on the DEIS. Specifically, comments were made on proposed activities within the Myrtle-Silvies Roadless Area. Generally, public comments were opposed to any activities within the Myrtle-Silvies Roadless Area. Alternative Seven-A was developed by the IDT to respond to these comments. Alternative Seven-A is similar to the preferred alternative with no activities proposed in the Myrtle-Silvies Roadless Area except for road closures and decommissioning. Alternative Seven-A would move about 39,144 acres (60% of the project area) in the project area toward historical ecosystem conditions with the use of commercial, noncommercial and precommercial activities. Prescribed burning would be utilized on 33,751 acres to move the area towards HRV (5-23 year fire cycle) and reduce the risk of stand-replacement wildfires. Miles of open roads in the watershed would be reduced to 61% of current levels by closing and decommissioning eighty-seven miles. Roads identified as contributing sediment to streams that are not closed would be reconstructed.

Alternative Seven-A complies with the Forest Plan except for the following:

- This alternative would require a non-significant, site-specific Forest plan amendment for reducing big game cover, habitat effectiveness index (HEI), and components of HEI below the Forest Plan standards or below existing conditions that do not meet standards.
- This alternative would require a non-significant, site-specific Forest plan amendment to allow harvest within the 30-acre nest habitat surrounding goshawk nest trees.
- This alternative would require a non-significant, site-specific Forest Plan amendment for reconfiguration of DOG areas (see section titled "Projects Common to All Action Alternatives").

Access and Travel Management

Roads selected for closure, decommissioning or reconstruction in this project are those roads that the IDT identified as having a negative impact on fish and wildlife habitat, and where actions would be necessary for restoration of watersheds. Additional roads determined unnecessary for

management activities or that need to be closed to meet 1999 Forest Plan road density standards were also selected. Two hundred forty-seven roads totaling 87 miles would be permanently closed with an earth berm, sign, or gate; seasonally closed with a sign; or decommissioned (Reference Maps 7 and 8).

Table 2-14. Alternative Seven-A Road Closures.

Type of Closure	Roads	Miles
Permanent Closure	222	69
Seasonal Closure	7	10
Decommission	16	7
Signed Year Round Closure	2	1
Total	**247**	**87**

Road maintenance activities are proposed for portions of Forest Roads 3100286 (0.83 miles), 3100860 (2.33 miles), 3125971 (1.81 miles), and 3130129 (2.72 miles). These specific roads were identified as contributing sediment to streams and are proposed for maintenance because they were determined necessary for access. Forest Road 3100860 would be seasonally closed during the wet season to protect the road from further damage.

Road reconstruction activities are proposed for Forest Road 3125912 (2.12 miles). This specific road was identified as contributing sediment to a stream and is proposed for reconstruction because it requires realignment and was determined necessary for access.

Additional road maintenance activities (associated with proposed timber harvest) as well as road maintenance activity details are disclosed in the vegetation condition activities.

Activities Proposed Within The Myrtle-Silvies Roadless Area

Proposed activities within the Myrtle-Silvies Roadless Area include:

- permanent closure of 10 roads totaling 1.51 miles; and
- decommissioning of two roads totaling 0.30 miles.

For more information on these activities please refer to the Access and Travel Management section.

Aspen Restoration

Aspen restoration activities are proposed on 268 acres (Reference Maps 21 and 22). Aspen restoration activities common to all Action alternatives were listed in section titled "Projects Common to All Action Alternatives." Additional actions specific to this alternative include:

Aspen stands outside RHCAs (121 acres):

- Competing conifers greater than 21" dbh may be converted to snags or large woody material as needed.
- Competing conifers less than 21" dbh may be commercially harvested where practical.
- Competing conifers less than 7" dbh may be precommercially thinned.

Aspen stands inside RHCAs (147 acres):

- Competing conifers less than 9" dbh may be precommercially thinned.
- Competing conifers less than 21" dbh may be converted to large woody material and placed into RHCA.
- Competing conifers of any size may be converted into snags.

Juniper Reduction

Juniper reduction is proposed to reduce juniper densities and distribution towards historical levels. Some trees 12-18" dbh with old growth characteristics and all trees over 18" dbh would be left. Juniper reduction would be accomplished commercially (where viable) and non-commercially on 715 acres (Reference Maps 21 and 22).

Commercial Harvesting and Associated Fuels Disposal

Commercial harvesting and associated fuels disposal activities (and precommercial thinning where commercial harvesting is not viable) are proposed on 15,701 acres (Reference Maps 21 and 22 and Appendix B). Approximately 59,615 CCF or 31 MMBF would be harvested on several timber sales over several years. Specifically, the Forest Service proposes to commercial thin 7,107 acres, and intermediate thin 8,473 acres. Commercial harvest activities would take place in 121 acres of aspen stands to accomplish restoration objectives (see Table 2-15). Commercial harvest would take place in 2,327 acres of LOS stands; however, stand structures would be maintained and viability would be enhanced. Harvest activity details are the same as those related under the Proposed Action.

Treatments in Silvies River Bald Eagle Management Area

To protect and maintain stand characteristics in the Silvies River Bald Eagle Management Area (BEMA), silvicultural treatments would consist of commercial thinning of the understory on 173 acres within close proximity of the bald eagle nest. Acres of thinning are included under the total acres thinned in each alternative. Fuels management would consist of introducing low intensity prescribed fire into about 174 acres of forest habitat within the BEMA. These acres are a portion of Burn Block 12. All activities would be done outside of the bald eagle nesting season (see section on Design Criteria and Mitigation).

Road Maintenance and Temporary Access Roads

Road maintenance and temporary access are necessary to access proposed harvest units.

- Approximately 192 miles of road used for harvest activities would have road maintenance activities.
- No new permanent road construction is proposed.
- Approximately 3.5 miles of temporary access roads would be constructed (Reference Maps 21 and 22).

Road maintenance and temporary access road details are the same as those described under the Proposed Action.

Table 2-15. Alternative Seven-A Commercial Harvest Acres by Treatment.

Treatment Prescription	Acres
Commercial Thin	7107
Intermediate Thin	8473
Aspen Restoration	121
Total	**15,701**

Post and Pole

Post and pole sales are proposed on 452 acres of lodgepole pine stands (Reference Maps 21 and 22). The objectives are the same as those mentioned in the Proposed Action.

Precommercial Thinning and Associated Fuels Treatment

Precommercial thinning and associated fuels treatment activities are proposed for 16,047 acres (Reference Maps 21 and 22 and Appendix B). The purpose and objectives for precommercial thinning are the same as those mentioned in the Proposed Action. Fuels would be treated either mechanically or manually to reduce fuel accumulations, allowing for the use of prescribed fire.

Proposed precommercial thinning within the two potential eagle roost stands is the same as described in Alternative Three. Fuels would be treated manually.

Landscape Scale Fuels Treatment

Alternative Seven-A proposes 33,751 acres in eleven fuel blocks for landscape scale fuels treatment activities (Reference Map 23). The objectives and project design are the same as those mentioned in the Proposed Action. Table 2-16 lists the acres by fuel block. Burn priority is the same as listed under the Proposed Action.

Table 2-16. Alternative Seven-A Fuel Blocks.

Fuel Block#	Acres
1	2484
2	5298
3	5023
4	2100
5	7798
7	3988
8	940
9	895
10	3419
11	696
12	1110
Total	**33,751**

Road Closure Definitions Common to All Action Alternatives

Permanent, Seasonal and Signed Year Round Closures

Permanent, seasonal and signed yearlong closures are roads on which motorized traffic has been excluded by regulation, barricade, and blockage or by obscuring the entrance. Permanent, seasonal and signed year round closures are closed roads. A closed road is still an operating facility on which motorized traffic has been removed (year long or seasonal) until needed for resource management and remains on the Forest Road Transportation System. The following will be considered for closed roads:

1) Yearlong and seasonal road closures would leave the road in a stable, drivable, condition with the road closed to vehicles except for emergency or permitted use. Administrative use would be limited and/or restricted.

2) One objective is to limit motorized vehicle traffic on native surface roads to reduce erosion. The roads would be left in a stable condition and maintained. The closed roads would reduce wildlife disturbance.

3) Closed roads would be closed with closure signs, or earth berms, and to a lesser extent, pole or steel gates, as applicable for effective closures.

Decommissioned Road

Decommissioned roads are roads whose function has been terminated and impacts to forest resources in the process of termination have been mitigated. A decommissioned road is removed from the Forest Development Transportation System inventory and is no longer part of the forest road system.

Activities that terminate the function of a road and mitigate any adverse impacts to forest resources may include:

- blocking the entrance;
- scattering wood or other material on the roadbed;
- re-vegetating;
- closing the "area" to motorized use until the former road re-vegetates;
- water barring and removing fills and culverts;
- reestablishing drainage-ways; and
- pulling back unstable road shoulders.

Existing Pole Barrier Road Closure in Myrtle Park Area

Design Features, Management Practices and Mitigation Measures

Design features, management practices and mitigation measures are site-specific management activities designed to reduce the adverse impacts of proposed activities. They would be implemented to avoid, minimize, reduce, or eliminate impacts caused by implementation of the action alternatives. These practices would be applied to project design and layout, in contracts, and permit requirements. The design features, management practices and mitigation measures listed below are in addition to standard management direction in the Forest Plan. Design features, management practices and mitigation measures are applied to all alternatives where applicable. For example, design features, management practices and mitigation measures specific to harvest related activities would not be applicable to Alternatives Three and Six because they do not propose harvest activities.

Design Features to Protect Soils and Water Quality

Road Closures and Decommissioning

Closed roads would have drainage features and running surface restored and maintained to a functional level.

All drainage structures (stream crossings and relief culverts) on roads that are being decommissioned would be removed, natural drainage re-established and left in a self-maintaining condition. Sites would be stabilized and seeded in a manner to prevent erosion, and drainages would be constructed to prevent erosion.

Road decommissioning within RHCAs would take place only during dry conditions (summer/fall) to reduce erosion potential.

The following best management practices should reduce the quantity of sediment delivered to stream channels.

For culvert removals:

- Observe ODFW in channel work period (October 1 through March 31) for work in live channels to reduce effects on fish. Remove culverts on intermittent channels when channels are dry.
- Use silt fences and straw bales where needed to prevent sediment from reaching stream channels.
- Place fill material excavated during removal of culverts in stable areas away from stream channels.
- Re-contour road ingress and egress to the natural grade of the hill slope. Re-establish the natural longitudinal profile and gradient of the stream within the confines of the road right-of-way.

For scarification/ripping of road surfaces:

- Use filter cloth fences, terre matting or straw mulch (certified weed free) to prevent transport of fine sediment to stream channels where scarified or ripped road surfaces are adjacent to stream channels.

Responsible Specialists: Sale Administrator or Engineer.

Harvest Related Activities

Design Criteria to minimize impacts to Riparian Habitat Conservation Areas (RHCAs)
INFISH buffers, for the purpose of managing streamside vegetation and habitat to maintain or improve water quality (RHCAs), would be employed on all streams, ponds, reservoirs, springs, seeps, bogs, and wetlands. INFISH buffers are defined as 300 feet each side of fish-bearing streams (Category 1), 150 feet each side of nonfish-bearing perennial streams and wetlands greater than 1 acre (Category 2 and 3), and 50 feet each side of nonfish-bearing intermittent streams and wetlands less than 1 acre (Category 4). The following design criteria allow aspen restoration within RHCAs while meeting riparian management objectives.

There would be no skidding across Category 1 through 4 streams and RHCAs.

There would be no use of existing landing(s) and no creation of new landings within Category 1 through 4 streams.

Hazard trees within or adjacent to RHCAs would be felled towards streams or draws when possible and left for large woody debris. Trees that fall across the road will be moved off the road and become part of the LWD component in the RHCA.

Trees felled for timber harvest and removal near RHCAs would be directionally felled away from stream buffers when possible to prevent disturbance.

No precommercial thinning or slash treatment would occur within 50 feet of the outer edge of the riparian vegetation along Category 1 and 2 streams or within 50 feet of the streambank, whichever is greater. Precommercial thinning slash in the RHCAs would be handpiled on dry ground and in piles no larger than a Volkswagen beetle, thus reducing fire intensity and subsequent soil damage and erosion.
Responsible Specialist: Project Coordinators, Sale Administrator, Logging Systems Specialist, Marking Crew, Silviculturist, and Fisheries Biologist/Hydrologist.

Design Criteria for Logging and Slash Piling Operations
To lessen soil disturbance, all ground-based logging equipment would be restricted to slopes under 35%. Slopes over 35% would require use of cable line to pull in logs.

Winter Logging: Suitable conditions to meet winter logging objectives are defined as either of the below conditions:

- Frozen ground conditions (frozen to a minimum of four inches).
- One foot of packed snow.

- Dispersed skidding would occur only when the above conditions are met. The objective of these requirements is to prevent tires and/or tracks from breaking through the snow pack or frozen ground to the soil below or riding over unfrozen ground conditions, resulting in detrimental compaction, puddling or displacement. If these detrimental impacts are observed, work shall cease, regardless of snow or ice depth. Winter logging under closely monitored winter logging specifications would help reduce detrimental compaction and displacement.

Dry Soil Conditions: Dry soil operating requirements are for the purpose of reducing soil compaction, limiting soil displacement and restricting the area of detrimental effects to 20% or less. These requirements are as follows:

- Skidding would be restricted to existing or designated skid trails at approximately 100-140 foot spacing; using existing skid trails whenever possible and operating during the dry season (generally July 1 - Oct. 15) using Best Management Practices (BMP's).
- Mechanized harvest equipment (i.e. feller-bunchers) would be restricted to existing skid trails whenever possible. Off-trail travel would be restricted to the minimum number of passes required (typically three passes or fewer) to remove the designated trees.
- The use of low static ground pressure equipment with less than 7.5 pounds per square inch.
- Operating during the dry season (generally July 1 - Oct. 15) with observations and/or measurements made of soil moisture levels to minimize soil compaction, displacement and puddling. Operations off skid trails should be confined to periods when soil moisture contents are less than 18 % for all soils except volcanic ash soils. Moisture contents for volcanic ash soils should be at least 10% to avoid excessive displacement and less than 30 % to minimize compaction. Puddling occurs when soil moisture levels are high, and when soil moisture conditions result in detrimental rutting (soil becomes molded and vehicle tracks cause rutting depths of 6 inches or more) logging shall be stopped.

Grapple-piling would require dry soil conditions as discussed above when operating off skid trails and the use of low ground pressure equipment (less than 7.5 lbs./sq. in. static). Equipment used to grapple pile precommercial thinning slash would be required to stay on existing skid trails, as much as possible, in order to reduce soil compaction or displacement. Single passes of grapple piling equipment off skid trails would be permitted when necessary to reach slash. The boom length would be specified as having a 20-foot minimum reach to enable grapple-piling equipment to reach slash from the skid trails as much as possible.

Harvest operations and/or grapple piling occurring outside the snow-covered/frozen soil provisions would not be permitted if soil conditions become wet enough to cause puddling and standing water.

Temporary roads opened to access harvest units would be scarified and seeded after use as needed, and water-barred and blocked.

Harvest equipment would be restricted to roads, landings, and skid trails except for feller bunchers. Roads, temporary access, landings, and skid trails would be confined to 20% or less of

the activity area for all timber harvest practices (including disposal of slash) as specified in the Forest Plan.

Approved designated skid trails would be required on all harvest units to reduce soil compaction and displacement. Existing skid trails would be used whenever possible; however, no skid trails would be used within RHCAs. Skidding equipment would be restricted to skid trails. Tractor trails would not exceed approximately 14 feet in total width over 90% of the length except where otherwise authorized. Skid trail and trail spacing would not generally be closer than 120 feet center to center, where parallel trails are used and 90 feet, center to center at midpoint when radial trails are used. Exceptions would exist where skid trails converge at landings. Water-barring and/or slash placement on skid trails would be required where the potential for erosion exists. Forest Service Manual direction and the Forest Plan recommend that skid trails over 20% gradient and areas of disturbed soil within 200 feet of streams be erosion control seeded and that these skid trails be water barred.

Subsoiling of skid trails and compacted areas to restore infiltrative capacity and reduce potential for surface flow, as well as scattering woody material over disturbed sites to provide enhanced surface cover, dissipate velocities, and trap sediment on the slope, would be implemented on a site specific basis as needed as determined by hydrologist or soil scientist.

When subsoiling is determined necessary, it would occur when soil moisture conditions are less than 20% at depths of 4-16 inches. Subsoiling volcanic ash soils may occur at soil moisture levels up to 30% with recommendation by a hydrologist or soil scientist. Subsoiling within 66 feet of springs and seeps and within 33 feet of the bottoms of draws would be avoided.

Subsoil landings where compaction and potentially hydrophobic soil exist, if soil depth and rock content permit subsoiling. Landings would be seeded with local native seed or non-persistent non-native species, or planted with conifers where appropriate.

Native grass seeding would be used where ground-disturbing activities (temporary road construction and road reconstruction, decommissioned roads, skid trails, and landings) have exposed the soil and the establishment of vegetative cover is needed to minimize erosion and protect water quality. Grass seed would be "local" native seed or non-persistent non-native species.

Infiltration buffers (areas off limits to machinery to prevent compaction and allow water infiltration) of at least 50 feet would be used at interfaces of timber with sage steppe and scablands to avoid channelizing and disturbing these areas. Boomed yarders and boomed feller bunchers can help in reducing disturbance within these buffers.

For all activities, no decking of logs or parking of equipment would be permitted in scab flats or meadows in order to protect these areas from resource damage. Scab and rock flats would be avoided and not utilized for landings and skid trails because of soil characteristics and difficulties with restoration and mitigation.

Responsible Specialist: Sale Administrator and Soil Scientist/Hydrologist.

Prescribed Burning Activities

Constructed fire lines would be water barred at locations where erosion is likely. Fire lines that could create motorized vehicle access would either be obliterated or camouflaged. Incidental transportation system developed during firing or suppression activities would have erosion control measures implemented and be obliterated or camouflaged.

No direct lighting would take place in Category 1 and 2 RHCA. Incidental ignition may take place within Category 4 RHCA. Incidental ignition may occur during aerial ignition, however, the intent is no direct lighting in RHCA.

To reduce impact to shade, all category 1 streams within Fuel Blocks 1 and 10 must be spring burned to black line RHCA to avoid any additional burning in riparian area during fall burns. Burning within fuels block 10 must be in coordination with a wildlife biologist in order to protect Goshawk Nest Areas.

To avoid destruction of riparian hardwoods, water dependent vegetation, and LWM, direct lighting would not occur within RHCA. If portions of an RHCA are inadvertently burned too hot and LWM is consumed or riparian hardwood roots are killed, snags in excess of 100% PPL, may be felled to provide down wood and willow, alder, and aspen would be planted where necessary. If excess snags are not available, Type 1 - Reserve Trees (live trees that are defective or deformed) would be felled to provide uncharred down wood. Planting of willow, alder, and aspen would be protected from browsing damage by cattle and big game by fencing, slash placement, and/or caging where appropriate.

Unrecorded or isolated aspen stands that are inadvertently burned during prescribed burning activities would be monitored for regeneration and to determine if protection measures need to be installed.

Responsible Specialists: Fuels.

Mitigation Measures to Protect Soils and Water Quality

The following mitigation measures are required to aid in minimizing, reducing, or eliminating impacts caused by implementation of the Proposed Action or any action alternative. The mitigation measures reflect, or are in addition to, standard management direction in the Forest Plan. BMPs will be included to insure minimal ground disturbance and to provide adequate mitigation (see Appendix 1). Effectiveness/implementation monitoring will be performed by TMA/resource personnel (the presale technician will assure BMPs are met during sale preparation and the sale administrator will assure BMPs are met during timber sale operations). Designated skid trails or the use of low ground-pressure mechanical harvesting systems will be utilized to protect soils from excessive disturbance. Regional Standards require that a C clause be included to prevent adverse cumulative soil impacts (<20%) and protect soils. To meet these standards, it will be necessary to harvest during dry or winter (frozen or snow covered) conditions, and use designated skid trails and landings.

Logging slash should be left and scattered on skid roads, landings and throughout the harvested area to meet Forest Plan Guidelines.

Soils/Water Quality Mitigation

All skid trails would be closed at the conclusion of harvest activities using Best Management Practices and applicable timber sale contract provisions. Skid trails would be waterbarred and seeded to minimize erosion and reduce the likelihood of noxious weed establishment. All landings and other disturbed areas would be tilled and seeded with either native or desirable introduced grasses and covered with mulch or small coarse woody debris after completion of logging.

Energy dissipaters such as waterbars would be installed on all native surface roads used for log hauling to reduce soil erosion and potential sedimentation into streams. This would be done after hauling is completed. During construction of waterbars, machinery would be restricted to the road prism and utilize an angled blade.

All temporary access roads would be checked for ground disturbance, compaction, and drainage problems and treated if necessary. If deemed necessary by the Sale Administrator, Hydrologist or Soil Scientist, treatment could include subsoiling, seeding, and mulching and drainage structures.

Disturbed soil that occurs 100-200 feet from a stream would be seeded (certified weed free) or have mulching applied to prevent sediment transport into the stream. This would apply to soil disturbance greater than 200 feet from a stream where there is risk of transport of sediment into the stream. Seeding would be done on all skid trails with slopes greater than 20% where there is soil disturbance.

Responsible Specialists: Sale Administrator, Soils Scientist, Silviculturist, Hydrologist and/or Fisheries Biologist, Fuels Specialist and Engineer.

Best Management Practices

Best Management Practices (BMPs) are the primary mechanisms to enable the achievement of water quality standards (Environmental Protection Agency, 1987). BMPs have been selected and tailored for site-specific conditions to arrive at the project level BMPs for the protection of water quality. BMPs are a supplement to the General Water Quality Best Management Practices, Pacific Northwest Region, 1988. See Appendix F for complete documentation of BMPs.

Design Features to Protect Wildlife

PETS (Proposed, Endangered, Threatened, and Sensitive) Species

Goal: All Proposed, Endangered, Threatened, and Sensitive species would be protected so as not to:

- *likely jeopardize the continued existence, or cause adverse modification of habitat of proposed, endangered or threatened species or*
- *contribute to the loss of viability of sensitive species.*

If any new occurrences of listed species are found during project implementation, these species would be protected as described in the policy guidelines found in FSM 2670 and timber sale contract.

Responsible Specialists: Wildlife Biologist.

Spotted Frog Hibernation Habitat

Goal: Avoid changing or reducing potential frog hibernation sites around/near springs.

Water developments for livestock would be designed so they do not dewater spring sites.

Responsible Specialists: Rangeland Management Specialist, Fisheries and Wildlife Biologist.

Snags/Down Wood

Goal: Provide dead and defective tree habitat at levels capable of supporting viable population of associated wildlife (Regional Forester's Forest Plan Amendment #2).

Snags - Retain all snags to provide for Forest Plan standard levels of primary cavity excavators. Snags, which are deemed a hazard to operations, may be felled, but would be left to provide down logs as identified below.

Down logs - Maintain down logs for wildlife habitat and long-term site productivity by providing the levels indicated below. Any snags 150 feet away from the edge of an open road that are cut because they pose a hazard to operations would be left to remain as down logs to meet Forest Plan standards, unless a wildlife biologist approves removal.

Table 2-17. Down Wood Requirements.

Species	Pieces per acre	Minimum Diameter at Small End (inches)	Minimum Piece Length	Total Length feet/acre
Ponderosa Pine	3 - 6	12"	> 6 feet	20 – 40
Mixed Conifers	15 - 20	12"	> 6 feet	100 - 140

To reduce the impact of burning on snags and down logs, hand and grapple piles would be built at least 30 feet away from 12-inch DBH or larger snags and 10 feet away from down logs that meet the Forest Plan standards above (Tiedemann et al. 2000).

Direct ignition of snags and down wood would not occur. Prescribed burning should not eliminate or consume existing down wood pieces in excess of 3 inches total diameter or 1 1/2 inch per side.

Responsible Specialists: Fuels, Sale Administrator, and Wildlife Biologist.

Wildlife Connectivity Corridors

Goal: Maintain or improve connectivity between blocks of LOS by perpetuating stand structures and canopies used by animals as movement corridors.

Mechanical and prescribed burn treatments within connectivity corridors (Reference Map 28) would be conducted so as to maintain canopy closures within the top one-third of their site potential. Corridors will be at least 400 feet wide at their narrowest point. Treatments would maintain medium diameter or larger trees so that they remain common. Patches of, or scattered, understory vegetation will be retained where an understory exists in the corridors (Forest Plan Amendment #2).

In connectivity corridors, 50% of the area would not have PCT treatment leaving a mosaic pattern of trees and openings distributed throughout the unit to provide diversity, continuity, and hiding cover.

While fire would be allowed to creep into corridors, no direct ignition would occur within corridors to help maintain understory vegetation and other forest characteristics in corridors.

Responsible Specialists: Fuels, Sale Administrator, and Wildlife Biologist.

Hiding Cover (for Big Game and Other Species)

Forest Plan Standard 28 (IV-28) states retain sufficient hiding cover to mitigate [any cover] shortage. To provide additional hiding cover for big game and therefore partially mitigate the loss of [thermal] cover, 5-20% of the areas designated for precommercial thin would not be treated leaving pockets of hiding cover. Retaining cover would also benefit goshawk prey species. On north slopes, wetter mixed conifer sites, and in goshawk PFAs, approximately 10-20% of the area would not be treated, whereas in south slopes or drier sites approximately 5-15% would be left un-thinned. Prescribed burning would be allowed to occur in and remove up to 50% of these patches of hiding cover (post-fire hiding cover would be expected to be left on 5-10% or more of the pre-treatment hiding cover area for each of these stands). Design criteria that include an annual pre-treatment review of monitoring (see migratory bird and hiding cover design criteria below) would be used to adjust burning methods to reach these goals.

Responsible Specialists: Fuels, Sale Administrator, and Wildlife Biologist.

Big Game Winter Range (MA-4A)

Goal: Avoid disturbing wintering big game in a significant or prolonged manner.

From **December 1 through April 1,** management activities that could disturb wintering big game in a significant or prolonged manner would not be allowed. If proposed activities are determined to have little or no affect on wintering big game this restriction would be waived.

Responsible Specialists: Wildlife Biologist.

Big Game Calving/Fawning Habitat

Goal: Avoid disturbing calving/fawning big game in a significant or prolonged manner.

From **May 1 to June 30**, burning crews will watch for lone female elk, deer, or antelope. If crews see any of these animals, they will search the immediate area for calves or fawns and avoid lighting where young animals are hiding. Burning crews do not need to monitor elk and deer outside the May 1st to June 30th window.

Responsible Specialists: Wildlife Biologist.

Raptor Nests (General)

Goal: Protect known active nests and future nest sites and avoid disturbing breeding birds by using spatial buffers and seasonal restrictions.

District wildlife personnel would be contacted for up-to-date raptor nest locations and activity status before implementation of timber harvest or prescribed burning activities. Existing raptor nests or raptor nests discovered during project implementation will be protected from disturbance and alteration of nesting structure by adhering to Forest Plan standards restricting such disturbance or alteration (Forest Plan IV-32). Known occupied raptor nest sites (See Table 2-18 and goshawk, osprey, and bald eagle below) would be protected based on site characteristics and biological needs of the species with period of use restrictions. If new raptor nests were identified during layout, marking or cruising, they would be protected accordingly.

Table 2-18. Timing Restrictions for Raptor Nests (General).

Description	Timing – Activities Permitted*	Timing – Activities Prohibited**	Notes
Occupied *Prairie Falcon* nest sites (within ½ mile of nest sites)	Activities can occur: August 1 – February 28	Activities are prohibited: March 1 – July 31	Known nest sites in project area
Occupied *red-tailed hawk* nest sites (within 600 feet)	Activities can occur: August 1 - February 28	Activities are prohibited: March 1 – July 31	Known nest sites in project area
Occupied *Cooper's Hawk* nest sites (within ½ mile of nest sites)	Activities can occur: September 1 – March 31	Activities are prohibited: April 1 – August 31	Known nest sites in project area
* Activities are permitted in all locations during these periods except within prescribed roosting stands or nesting areas, i.e., for goshawks, no activities within 30-acre nesting area; for all other raptors, no activities within 100 feet of nest trees/sites. ** Activities are only prohibited within distances specified in Column 1 for each species.			

Responsible Specialists: Logging Systems Specialist or Marking Crew Foreman, Sale Administrator, Fuels, and Wildlife Biologist.

Goshawk Nests

Goal: Avoid disturbing breeding birds by using spatial buffers and seasonal restrictions. Protect goshawk post-fledging areas.

Active Nests: Harvest in and adjacent to active goshawk core areas (within about 0.5 miles of the nest tree) would be prohibited from March 1 - September 30 for nests in general forest and December 1- September 30 for goshawk nests located in Big Game Winter Range (Reynolds et al. 1992).

Vegetation Management:

If new goshawk nests are located during layout, marking or cruising, they would be protected with a 30-acre no treatment buffer and seasonal restrictions would be applied to avoid impacting breeding birds. If new goshawk nests are found during treatment implementation, nests would be protected to the degree possible.

Responsible Specialists: Sale Administrator and Wildlife Biologist.

Fuels Management:

Fuel blocks 3, 5, 6, 7, 10, and 12 have known goshawk nest sites within their boundaries.

All Nests: No direct ignition within core nest stands, approximately 30 acres. Seasonal restriction for all activities (as per Forest Plan direction) adjacent to core areas is March 1 - September 30. For active nests within Big Game Winter Range the seasonal restriction is December 1 through September 30.

Minor fire creep (< 10% of core area) into core nest stand is allowable but should be avoided if possible. To avoid disturbance in active core areas, there would be no lighting within ¼ to ½ mile of the core area boundary if hand burning, and ½ to 1 mile if helicopter burning. Burning outside of these spatial buffers can occur in accordance with other mitigation measures, restrictions, and logistics.

Responsible Specialists: Fuels and Wildlife Biologist.

Table 2-19. Goshawk Nest Sites.

Nest Site	Burn Block	Other Restrictions	Seasonal Restrictions on Management Activities
HJ Spring	3	N/A	April 1-August 31
Bellows Spring	3	N/A	April 1-August 31
Van Zandt	7	N/A	April 1-August 31
Crane Spring	10	N/A	April 1-August 31
Myrtle Park	N/A	N/A	April 1-August 31
Myrtle Creek	N/A	N/A	April 1-August 31
FL Spring	5	Winter Range	December 1- August 31
Bennett	6	Winter Range	December 1- August 31
South Fawn	12	Winter Range	December 1- April 1
Ranger Spring	12	Winter Range/Bald Eagle Habitat	December 1- August 31

Osprey Habitat

Goal: Protect known nests and avoid disturbing breeding birds by using seasonal restrictions.

To prevent disturbance during the nesting and fledging period for osprey, management activities within ½ mile of known occupied nest sites or new nest sites cannot occur from April 1 through August 31. No activities will be done within 100 feet of the nest tree/site.

Responsible Specialists: Fuels and Wildlife Biologist.

Bald Eagle Habitat

Goal: Protect known nest and avoid disturbing breeding birds by using seasonal restrictions.

There is a known bald eagle nest site near Fuel Block 12. The Silvies River Nest Site Management Plan allows prescribed burning and other management activities to occur near the nest area when the nest site is not in use. The nest occurs in Big Game Winter Range therefore, the combined seasonal restriction period would be December 1 to August 31 within 1 mile of the nest.

A potential bald eagle winter roost is located within Fuel Block 6. Use by eagles would be determined prior to implementation of silvicultural treatments or prescribed burning. A wildlife biologist or delegate would determine if site is active or abandoned. If site were active, any disturbing activities would be seasonally restricted from about November 15 to April 15 within and adjacent to roost sites. The District Wildlife Biologist would make the determination on the degree of disturbance of an activity and what is "adjacent" to the roost. If eagle activity expands to outside the designated roost area, planned activities would be modified to limit disturbance during the period of activity.

Responsible Specialists: Fuels Specialist and Wildlife Biologist.

Sage Grouse and Sage Grouse Habitat

Goal: Assure protection of breeding sage grouse and potential nesting sage grouse.
During burning operations, firefighters would actively suppress any prescribed fire spread along the southern border of Burn Block 7 (using methods such as an ATV-mounted sprayer) to assure that prescribed fire does not spread into the sagebrush habitat that is south of the project area.

If nesting is determined to be occurring in the project area, the following design criteria would apply: Conduct prescribed burning in Burn Block 6 and in any areas with known nesting sage grouse during the fall to eliminate the potential to affect nesting sage grouse. Within two miles of the reported lek (that occurs south of the southern border of the project area) and in any areas with known nesting sage grouse, no hand lighting would occur in sagebrush habitats 1/4 acre or larger. In aerial ignition, sagebrush stands of 2 acres and larger would be identified and attempts would be made to not put any direct ignition into them. Fire would be allowed to back or creep into up to 15% (in area) of these stands (Kilpatrick no date).
Responsible Specialists: Fuels Specialist and Wildlife Biologist.

Blue Grouse Winter Habitat

Goal: Provide blue grouse winter roost sites.
Retain large mistletoe infested or "wolfy" Douglas-fir trees along tops or upper third of ridges and large scab openings, where available (Forest Plan IV-30).
Responsible Specialists: Sale Administrator, Fuels, And Wildlife Biologist.

Migratory Bird Habitat

Goal: Protect nesting migratory birds and protect gray flycatcher (a sensitive species).

No more than 2,500 acres of precommercial thinning would be allowed during the spring breeding season (between April 15 and July 15) inside the project area (Altman 2000). Juniper removal would occur outside the spring breeding season. Juniper reduction could be done during the breeding season, but prior to treatment a nest search for breeding gray flycatchers must be conducted and trees used by flycatchers for nesting would be marked for protection (known nests and nest trees would be protected).
Responsible Specialists: Post Sale Forester and Wildlife Biologist.

Migratory Bird Habitat and Elk Cover

Goal: Assure protection of nesting migratory birds and elk cover.
Prescribed burn plans and mechanical treatment plans, as well as prescribed burn monitoring results would be reviewed annually prior to spring treatments. Habitat treatments would be coordinated to assure nesting and foraging habitat and elk cover are maintained during implementation of this project at the levels described in Design Features above and in Chapter 4.
Responsible Specialists: Sale Administrator, Fuels Specialist, and Wildlife Biologist.

Measures to Protect Shrub and Scabland Habitats

Goal: Protect and maintain mountain mahogany shrublands, scabland habitats, and associated species.
No hand lighting would occur in mountain mahogany stands or scablands 1/4 acre or larger. In aerial ignition, scablands and mahogany stands of two acres and larger would be identified and attempts would be made to not put any direct ignition into them. Fire would be allowed to back or creep into these stands.
Responsible Specialists: Fuels and Wildlife Biologist.

Unique and Sensitive habitats

Goal: Maintain the integrity of unique and sensitive habitats.

Protect elk wallows, animal dens, cliffs, talus slopes, and other unique and sensitive habitats not covered by other design elements with a 100-foot wide buffer.

Responsible Specialists: Wildlife Biologist, Sale Administrator.

Mitigation Measures to Protect Wildlife

Snags/Down Wood

Goal: Provide dead and defective tree habitat at levels capable of supporting viable population of associated wildlife (Regional Forester's Forest Plan Amendment #2).

In Replacement Old Growth stand 02011 and LOS portions of Replacement Old Growth stands 02012 and 02016, and in spring, cottonwood, and aspen restoration areas - if the historical level of snags (1-1.8 12" dbh snags per acre) were not present upon completion of treatments, additional snags would be created:

- The number and location of created snags would be determined during post-treatment monitoring efforts (since the number of snags remaining can't be determined until after treatments are completed).
- Snags would be created mainly out of codominant and intermediate trees, and with an occasional dominant tree. This would allow the Forest Service to create snags on a sustainable basis by not removing the largest and healthiest trees, and would allow the stand to progress towards old growth structure.
- Snag size will vary in each unit and even within a unit, but the snag density goal for creation would be 1 to 1.8 snags/acre (i.e. if there is already 1 snag per acre larger than 12", no more would be created).
- Snags would generally be created out of 12-inch dbh and larger live trees, preferably with split or broken tops and/or other defects. Where available and sustainable, 21" snags would be created.
- Created snags would be 150 feet or more from open roads, and would be ponderosa pine, western larch, Douglas fir, or white fir.
- Snag creation could be accomplished with fire, cambium girdling, inoculation of cavity creating agents (heart rot fungus), or removal of crowns.

If post-treatment down wood levels do not meet Forest Plan standards, down wood may be created based on post-treatment monitoring. Where snags are in excess of Forest Plan standards, they may be felled to provide down wood. If excess snags are not available, Type 1 - Reserve Trees (live trees that are defective or deformed) could be felled to provide uncharred down wood at the following rate:

- In ponderosa pine sites, 1 excess snag or 1 reserve tree could be felled to provide at least 3 uncharred pieces per acre. Each would be > 12 inch diameter small end and $\geq$ 20 foot total lineal length when felled.
- In mixed conifer sites, 1 to 2 excess snags or reserve trees could be felled to provide at least 15 uncharred pieces per acre. Each would be > 12 inch diameter small end and >100 foot total lineal length when felled.

The amount needed would be determined during monitoring.
Responsible Specialists: Fuels, Sale Administrator, and Wildlife Biologist.

Design Features to Protect Forest Health

Measures for disease prevention include:

- Apply borax to all ponderosa pine stumps 12" in diameter and greater within 48 hours of creation to reduce the potential spread of Annosus root disease.

Responsible Specialists: Sale Administrator and Silviculturist.

Design Features to Protect Sensitive Plants

A 50-foot area to protect (ATP) would be established around the outer extent of all documented/mapped sensitive plant sites. Vehicles, equipment, and operations that would displace soils or damage plants, would not be permitted in the ATP. All trees would be directionally felled away from the ATP. Activity created slash would not be piled in ATPs. Seeding of decommissioned road segments within documented ATP sites would not occur. Before any road reconstruction occurs, the reconstruction plan would be reviewed by the botanist to ensure that sensitive plant populations are not inadvertently impacted or impacts are minimized. During prescribed burning, fire line construction and fire suppression equipment use would not occur within documented ATP sites. Any exceptions would have to be evaluated for compatibility by a botanist prior to implementation.
Responsible Specialists: Botanist, Sale Administrator, Fuels Specialist, Engineer, and Post Sale Forester

Design Features to Protect Air Quality

Prescribed burning would follow the *Memorandum of Understanding between Oregon Department of Environmental Quality and Oregon Department of Forestry, and The United States Department of Interior Bureau of Land Management and The United States Department of Agriculture Forest Service* (1994).
Responsible Specialists: Fuels Specialist.

Design Features to Protect Range Resources

If prescribed burning has created over 50% blackened ground in a pasture, cattle would not be permitted to graze before August 1st in that pasture. Allowing one growing season of rest would provide for reproduction of grasses by promoting seed production and building up reserves in roots.

District range personnel would contact permittees to coordinate cattle movement before burning operations.

Fences and range improvements would be protected where feasible.

To minimize disruption of the grazing systems on the affected allotments, the timing of felling and skidding timber through fences would be coordinated with District range personnel.
Responsible Specialists: Rangeland Management Specialist.

Mitigation Measures to Protect Range Resources

Any damaged fences and range improvements would be promptly repaired or replaced by whoever causes the damage.

When aspen stands or springs are fenced to exclude cattle and they contain the water source for the area, an alternate water source would to be provided prior to commencement of fence building.

Responsible Specialists: Rangeland Management Specialist.

Design Features for Noxious Weed Control and Prevention

In order to prevent further spread of noxious weeds within the watershed, whenever possible:

- Include a noxious weed locator map in the project file to facilitate avoidance and monitoring.
- Avoid or minimize disturbances within or adjacent to existing noxious weed infestations.
- Existing noxious weed sites would be treated prior to any site-disturbing activities proposed in this document.

Whenever possible, noxious weed sites along primary haul routes would be treated prior to commencement of logging activities in order to prevent existing noxious weeds sites along roads from spreading or establishing new sites within and outside the watershed.

Whenever possible, gravel sources containing noxious weed sites would be treated prior to use in order to prevent existing noxious weeds sites in gravel sources from expanding or establishing new sites through spreading of contaminated gravel.

Responsible Specialist: Noxious weed coordinator.

In order to prevent establishment of new noxious weed sites on disturbed ground within the watershed, timber sale contract provisions for requiring all off road logging and construction equipment to be free of noxious weeds when moving onto the sale area and/or moving between units on the sale area that are known to contain noxious weeds. Specifically, Use CT6.35 - Equipment Cleaning. In this provision the purchaser has to certify that his equipment is weed free. The Forest Service would reserve the right of inspections prior to the equipment's use and to verify that each piece operating in the woods is clean.

Responsible Specialists: Noxious weed coordinator and contracting officer representative.

Mitigation Measures for Noxious Weed Control and Prevention

In order to prevent establishment of new noxious weed sites within the watershed, grass seeding would be utilized where ground-disturbing activities (temporary road construction and reconstruction, decommissioned roads, skid trails, and landings) have exposed the soil. Grass seed would be "local" native seed or certified weed-free non-persistent non-native seed.

Responsible Specialist: Noxious weed coordinator.

Design Features to Protect Recreation Resources

All activities would be designed to minimize impacts within and adjacent to identified dispersed recreation sites.

Responsible Specialist: Recreation Specialist.

Design Features to Protect Cultural Resources

Harvest Related Activities

Ponderosa pine cambium peel tree, Myrtle Park, October 1992

If dry ground logging is to occur, sites must be avoided. If the logging is to take place over snow, heritage sites may be logged over, provided conditions meet forest standards for over snow logging - throughout the duration of the operations. Landings must not be located over heritage sites, regardless of season or conditions. Prior to layout and marking of units, specialists would coordinate with the archaeologist, to ensure heritage site locations are taken into account. Over-snow operations during which logging over sites may be approved, must be conducted within an environment of active and continuous consultation with the Oregon State Historic Preservation Office (SHPO), by the archaeologist. Also, the archaeologist would monitor any over-snow logging operations. If, at anytime, it was determined by the archaeologist that damage was occurring to sites, operations over sites would cease, and a policy of strict avoidance would begin. Follow-up monitoring, after snowmelt, would take place after any over-snow logging operations. Finally, observations made during all monitoring would be reported to SHPO.

Responsible Specialists: Sale Administrator, Logging Systems Specialist or Marking Crew Foreman, and Archaeologist.

Precommercial Thinning Activities

Thinning would be allowed over most heritage sites; however, no machine piling (grapple piling) would occur within site boundaries. Thinning slash within sites would be either lop-and-scatter, or slash would be hand-piled outside the site boundaries. No pile burning would occur within site boundaries. Prior to layout of thinning units, and implementation of thinning operations, the responsible specialist would coordinate with the archaeologist to ensure thinning would not occur over sensitive heritage sites. Prior to both piling and burning activities, specialists would coordinate with the archaeologist to ensure that machine piling and pile burning would not occur within site boundaries.

Responsible Specialist: Thinning COR or technician, Fuels Specialist, and Archaeologist.

Road Closures, Decommissioning and Temporary Road Construction

Specialists would coordinate with the archaeologist prior to road closure, decommissioning and temporary road construction activities take place, to ensure that heritage sites are avoided by ground disturbing equipment or activities.

Responsible Specialist: Sale Administrator, Engineering, and Archaeologist.

Prescribed Burning Activities
Specialists would coordinate with the archaeologist prior to burning preparation to ensure that heritage sites are either avoided or, in the case of some lithic scatter sites, are burned over with the appropriate low temperatures and short exposure times. Heritage sites would be avoided during fire line construction and by motorized vehicles used for layout and monitoring. Burning of slash piles must not occur within heritage site boundaries. Sites located within traditional root-gathering areas must be fall burned to avoid damage to sensitive cultural plants.
Responsible Specialists: Fuels Specialist and Archaeologist.

Restoration of Riparian (Spring) Habitat Activities
Prior to layout of fence lines, specialists would coordinate with the archaeologist to ensure protection of heritage sites near or around springs.
Responsible Specialists: Wildlife Biologist and Archaeologist.

Aspen and cottonwood Restoration Activities
Prior to thinning operations, specialists must coordinate with archaeologist to ensure protection of heritage sites in the area. Extreme care should be taken so as to not allow falling conifers, or those being skidded, to scrape against aspen trees bearing dendroglyphs. If a lithic site is located in the area of activity, mechanized vehicles should be kept out.
Responsible Specialists: Silviculturist and Archaeologist.

Juniper Reduction, Post and Pole
Mechanized vehicles must not operate within sites during these activities. Prior to operations, specialists must coordinate with the archaeologist to ensure protection of heritage sites in the area.
Responsible Specialists: Thinning COR or technician, Sale Administrator, Presale Technician and Archaeologist.

Monitoring

Resource monitoring of project work would be implemented with the action alternatives. The objectives are to determine if management activities are moving resources toward desired management objectives. In addition to any monitoring requirements that may apply from the Malheur National Forest Monitoring Plan, monitoring activities would include the following:

1. Post treatment soil monitoring will be conducted in stands that are expected to have detrimental soil impacts at or above 20% (see appendix E).
2. Post-treatment snag and down wood surveys would be conducted as needed to determine the need to create additional snags and down wood. Treatment activities may increase or decrease snag and down wood densities. These surveys would be necessary to determine what action, if any, is needed to move the project area toward Forest Plan standard levels for snags and down logs.
3. Roads that have been closed or decommissioned would be monitored over a five-year period to inspect the effectiveness of the closure or decommissioning and hydrologic function of the remaining roadway. If monitoring determines the closure or decommissioning is not effective, it would be corrected to meet objectives.

4. Noxious weeds would be monitored for changes in populations. Annual monitoring of landings would continue for a minimum of four years following activity.
5. Monitoring of fuels treatment areas would occur pre-treatment, during treatment, and for five years post-treatment, as follows. Prior to implementation of the project, fuel loading information would be gathered by the use of photo series books. Fuels personnel would monitor during implementation of mechanical slash treatment and prescribed fire treatments to assure adequate reduction of fuel loadings and ladder fuels. Fuels personnel would also monitor after the fuels treatments have been accomplished to determine if fuel loadings have been moved towards historic levels.
6. Stream temperature, sediment monitoring and fish surveys would continue at established sites.
7. Aspen protection measures (4-foot and 8-foot fences, and cages) for protection of regeneration would be monitored for effectiveness.
8. Post-harvest monitoring of active goshawk nest sites would be accomplished to determine how nesting territories are affected.
9. Post-harvest canopy cover monitoring would occur in 5% of commercially treated acres in goshawk post-fledging areas to determine if remaining cover provides recommended canopy closure for fledgling goshawks. Methods of cover analysis may range from satellite imagery analysis to field surveys with a densiometer.
10. Prior to any treatments, surveys would be conducted for nesting gray flycatchers and sage grouse in sagebrush/juniper habitats that have activities planned during the springtime.
11. If treatments (harvest, precommercial thin, prescribed burning) are proposed to occur during prohibited times in raptor disturbance buffer zones, known raptor nests, and those discovered during implementation, would be monitored prior to treatment to determine whether nests are active, and therefore would determine if treatments can occur during the proposed time frame.
12. The condition of grazing allotment fences and trails would be monitored during prescribed burning, precommercial thinning, and timber activities to identify damage or destruction of fences and trails.
13. Range Forest Officer in Charge and grazing permittees would monitor livestock distribution and location during commercial operations.
14. The four springs that would have water developments for livestock would be monitored to assure that spring dewatering does not take place during periods of livestock use.
15. Pastures would be monitored annually following prescribed burning activities to determine the amount of area burned and intensity of burn.
16. Stands identified for treatment would be monitored following marking to ensure that they comply with the marking instructions.

17. Sale administrators would monitor timber harvest to ensure that harvest activities comply with all design criteria and mitigation measures.

18. Following commercial treatment, a silviculturist would monitor the resulting stand conditions to determine if treatment objectives were met, and to determine if secondary treatments are still necessary or need to be modified.

19. Following secondary and tertiary treatments, a silviculturist would monitor the resulting stand conditions to determine if treatment objectives were met, and to determine if any additional treatments are necessary.

20. Where precommercial thinning is to be the primary treatment, the treatments would be monitored by Contracting Officer's Representatives. Following precommercial treatment, a stand exam would be done to ensure that objectives were met.

21. ·Prior to layout and marking of commercial harvest units, layout and implementation of thinning units, piling and burning activities, road closure, decommissioning and temporary road construction, burning preparation, layout of fence lines, an archaeologist would monitor to ensure cultural resource sites are protected.

22. ·The archaeologist would monitor any over-snow logging operations. Over-snow operations during which logging over sites may be approved, must be conducted within an environment of active and continuous consultation with the Oregon State Historic Preservation Office (SHPO), by the archaeologist.

23. Known sensitive plant sites would be monitored for changes in populations.

Alternatives Eliminated From Detailed Analysis

The following are alternatives that were considered but eliminated from detailed analysis and the reasons for elimination. In the DEIS these alternatives were numbered 6 thru 9. In this document, alternatives eliminated from detailed analysis are numbered A thru G, and alternatives considered for detailed analysis are numbered sequentially (One through Seven-A).

Preliminary Alternative A

An alternative that combined activities within the proposed action with additional prescribed burning within the Myrtle Creek portion of the Myrtle-Silvies Roadless Area was considered but eliminated from detailed analysis because:

- a high risk of prescribed burn escapement and potential for stand replacement fire exists due to the amount of fuel present and topography of area,
- the amount of prescribed burning being proposed (almost 54,000 acres) made accomplishment with current staffing unlikely,
- the cost of removing excessive dead, downed and green trees prior to ignition would be excessive,

- there would be a need to establish "control areas" surrounding Myrtle Creek canyon prior to any burning in the canyon (design of Fuel Blocks 2, 3, 4, 5, and 10), and
- there is a desire to maintain some areas in current conditions, especially concerning pileated woodpecker habitat.

Preliminary Alternative B

An alternative to restore the watershed to a condition that approximates HRV circa 1860-1900 was considered but eliminated from detailed analysis. This alternative would restore the watershed to a condition resembling "park-like" stands of ponderosa pine consisting of clumps of 2 to 10 large trees with single large trees spaced at 80 to 300 feet surrounding these clumps and no roads. This alternative was eliminated from detailed analysis because:

- it wouldn't provide roaded access if all or most roads were closed, increasing fire suppression and other management costs,
- removing and restoring 312.5 miles of roads is beyond present budget expectations,
- conversion of 2,500-5,000 acres of newly forested areas back to non-forest (savannah or seed tree) and 8,000-15,000 acres of mixed conifer stands back to ponderosa pine dominated stands would have an impact on other resources, especially wildlife and water quality
- Drastically reducing stocking levels on 15,000-20,000 acres would have an impact on wildlife and water quality as well as other resources.

Preliminary Alternative C

An alternative that combined activities in Alternative Four with additional commercial harvest treatments within the Myrtle Canyon portion of the Myrtle-Silvies Roadless Area was considered but eliminated from detailed analysis. With the uncertain situation of management for roadless area conservation, the responsible official deferred taking actions at this time that may preclude that implementation (also wilderness concern) at a future date. Additionally,

- some of the individual resource data within the roadless area was not readily available;
- the time to adequately produce and analyze this alternative was excessive to timelines set for the EIS; and
- helicopter or cable logging could be cost-prohibitive considering the value of product that would result.

Preliminary Alternative D

An alternative that proposed designating replacement old growth for Old Growth Area 02017 based on the ecological stand boundaries was considered but eliminated from detailed analysis. This alternative would designate ROG 02017 on the ecological stand boundary as opposed to forest road 3120. This alternative was eliminated from detailed analysis because:

- The designated ROG area would be substantially larger (well over 100% of the corresponding DOG) than the Forest Plan recommends,
- Forest road 3120 provided a logical identifiable boundary where it would be easily located on the ground, and

- The replacement old growth for Old Growth Area 02017 proposed under all action alternatives provides the recommended habitat size.

Preliminary Alternative E

An alternative that proposed treatments on public lands administered by the BLM and to a lesser extent private property was considered but eliminated from detailed analysis because funding priorities did not match and there was a lack of interest with potential partners.

Preliminary Alternative F

An alternative that proposed utilizing prescribed fire for fuel reduction without thinning, similar to the Sand Creek Ecosystem Restoration Project and the Dry Forest Strategy by the Wenatchee National Forest, was considered but eliminated from detailed analysis because:

- The Malheur National Forest does not have a Dry Forest Strategy in place,
- Fire alone can create a great number of small snags that would not meet visual objectives,
- Heavy fuel loading, especially ground fuels may create soil heating and root damage to residual trees causing high levels of tree mortality
- Multiple fire entries would be needed and funding levels are not expected to meet need
- Limited opportunities to reduce fuel loadings at this level while meeting smoke management standards
- Social and economic benefits from commercial harvesting are not realized
- Manual thinning (commercial and precommercial) can provide more precision and remove specific size classes more safely and cost effectively than can prescribed fire alone.

Preliminary Alternative G

An alternative that combined activities within the proposed action with the use of chemical methods to manage noxious weed infestations was considered but eliminated from detailed analysis because:

- Comments made on the Proposed Action showed opposition to the use of toxic chemicals to control noxious weeds, and
- Further analysis determined chemical treatment was not warranted at this time. Manual control was considered adequate for the twelve new noxious weed sites.

Table 2-20. Issue Comparison.

Issue	Activity	Alt. One No Action	Alt. Two Proposed Action	Alt. Three	Alt. Four	Alt. Five	Alt. Six	Alt. Seven Preferred	Alt. Seven-A
Access & Travel Management	**Open Roads**	314 miles	171 miles	154 miles	154 miles	277 miles	227 miles	227 miles	227 miles
	Permanent Closures	None	212 roads for 75 miles	273 roads for 105 miles	273 roads for 105 miles	104 roads for 23 miles	222 roads for 69 miles	222 roads for 69 miles	222 roads for 69 miles
	Seasonal Closures	None	85 roads for 62 miles	27 roads for 25 miles	27 roads for 25 miles	4 roads for 4 miles	7 roads for 10 miles	7 roads for 10 miles	7 roads for 10 miles
	Signed Yr Round Closure	None	4 roads for 3 miles	10 roads for 5 miles	10 roads for 5 miles	1 roads for 1 miles	2 roads for 1 miles	2 roads for 1 miles	2 roads for 1 miles
	Decommission	None	5 roads for 3 miles	35 roads for 25 miles	35 roads for 25 miles	16 roads for 9 miles	16 roads for 7 miles	17 roads for 11 miles	16 roads for 7 miles
	Previously Closed	63 miles	63 miles	62[1] miles	62[1] miles	63 miles	63 miles	63[2] miles	63 miles
	Temporary Road Construction	None	3.5 miles	None	3.5 miles	2.8 miles	None	3.5 miles	3.5 miles
	Road Maintenance	None	164 miles	None	192 miles	163 miles	7.69 miles	192 + 7.69 miles	192 + 7.69 miles
	Road Reconstruction	None	None	None	0 miles	0 miles	2.12 miles	2.12 miles	2.12 miles

[1] 1 mile of previously closed road is proposed to be decommissioned
[2] 0.69 miles of previously closed road is proposed to be decommissioned

Table –2-20. Issue Comparison (Continued).

Issue	Activity	Alt. One No Action	Alt. Two Proposed Action	Alt. Three	Alt. Four	Alt. Five	Alt. Six	Alt. Seven Preferred	Alt. Seven-A
Activities Proposed in Roadless Area	**PCT, Pile & Burn**	None	None	729 acres	729 acres	729 acres	729 acres	729 acres	None
	Landscape Scale Fuels Treatment	No additional	5526 acres	5526 acres	5526 acres	5526 acres	5526 acres	5526 acres	No additional
	Spring Restoration	None	2 springs	2 springs	2 springs	2 springs	2 springs	2 springs	None
	Permanent Closures	None	10 roads for 1.51 miles	18 roads for 2.56 miles	18 roads for 2.56 miles	2 roads for 0.09 miles	10 roads for 1.51 miles	10 roads for 1.51 miles	10 roads for 1.51 miles
	Seasonal Closures	None	6 roads for 0.58 miles	2 roads for 0.16 miles	2 roads for 0.16 miles	None	None	None	None
	Decommission	None	None	2 roads for 0.30 miles	2 roads for 0.30 miles	2 roads for 0.30 miles	2 roads for 0.30 miles	3 roads for 4.30 miles	2 roads for 0.30 miles

Table –2-20. Issue Comparison (Continued).

Issue	Activity	Alt. One No Action	Alt. Two Proposed Action	Alt. Three	Alt. Four	Alt. Five	Alt. Six	Alt. Seven Preferred	Alt. Seven-A
Riparian Habitat, Water Quality, and Fish Habitat	**Aspen Restoration**	None	Commercial Removal 121 acres conifers < 21" outside RHCA; PCT; create snags & LWM on 268 acres; Protect and Monitor 245 acres	PCT, Create snags and LWM on 268 acres; Protect and Monitor 245 acres	Commercial Removal 121 acres conifers of all sizes outside RHCA; PCT; create snags & LWM on 268 acres; Protect and Monitor 245 acres	Commercial Removal 121 acres conifers < 21" outside RHCA; PCT; create snags & LWM on 268 acres; Protect and Monitor 245 acres	PCT, Create snags and LWM on 268 acres; Protect and Monitor 245 acres	Commercial Removal 121 acres conifers < 21" outside RHCA; PCT; create snags & LWM on 268 acres; Protect and Monitor 245 acres	Commercial Removal 121 acres conifers < 21" outside RHCA; PCT; create snags & LWM on 268 acres; Protect and Monitor 245 acres
	Riparian Habitat (Spring) Restoration	None	Vegetation treatment on 46 springs; Fence 5 springs; Develop troughs on 4 springs	Vegetation treatment on 46 springs; Fence 5 springs; Develop troughs on 4 springs	Vegetation treatment on 46 springs; Fence 5 springs; Develop troughs on 4 springs	Vegetation treatment on 46 springs; Fence 5 springs; Develop troughs on 4 springs	Vegetation treatment on 46 springs; Fence 5 springs; Develop troughs on 4 springs	Vegetation treatment on 46 springs; Fence 5 springs; Develop troughs on 4 springs	Vegetation treatment on 44[3] springs; Fence 4 springs; Develop troughs on 3 springs
	Cottonwood Restoration	None	Reduce competing conifers; create snags & LWM; Fence; plant & protect	Reduce competing conifers; create snags & LWM; Fence; plant & protect	Reduce competing conifers; create snags & LWM; Fence; plant & protect	Reduce competing conifers; create snags & LWM; Fence; plant & protect	Reduce competing conifers; create snags & LWM; Fence; plant & protect	Reduce competing conifers; create snags & LWM; Fence; plant & protect	Reduce competing conifers; create snags & LWM; Fence; plant & protect

[3] Two springs within the Roadless Area are not proposed for treatment.

Table –2-20. Issue Comparison (Continued).

Issue	Activity	Alt. One No Action	Alt. Two Proposed Action	Alt. Three	Alt. Four	Alt. Five	Alt. Six	Alt. Seven Preferred	Alt. Seven-A
Vegetation Condition	**Landscape Scale Fuels Treatment**	None	39,277 Acres; Blocks 1-12	39,277 Acres; Blocks 1-12	39,277 Acres; Blocks 1-12	25,311 Acres; Blocks 2, 5-7, 9,11,12	33,374 Acres; Blocks 2-9, and 11-12	39,277 Acres; Blocks 1-12	33,751 Acres; All Blocks except 6
	Commercial Thin	None	5885 Acres	None	7107 Acres	4411 Acres	None	7107 Acres	7107 Acres
	Intermediate Thin	None	7216 Acres	None	8473 Acres	5388 Acres	None	8473 Acres	8473 Acres
	Harvest in LOS[4]	None	2048 Acres[4]	None	2327 Acres[4]	1267 Acres[4]	None	2327 Acres[4]	2327 Acres[4]
	Post & Pole Sales	None	452 Acres	None	452 Acres	452 Acres	None	452 Acres	452 Acres
	Juniper Reduction	None	537 Acres	515 Acres	715 Acres	535 Acres	By Fire	715 Acres	715 Acres
	Precommercial Thin	None	15109 Acres	16,060 Acres	16,186 Acres	13,733 Acres	10,799 Acres	16,186 Acres	16,186 Acres
	Noxious Weeds Treatments	No additional	Manually treat 12 sites	Manually treat 12 sites	Manually treat 12 sites	Manually treat 12 sites	Manually treat 12 sites	Manually treat 12 sites	Manually treat 12 sites

[4] Acres of Harvest in LOS are included in commercial and intermediate thinning acres.

Table –2-20. Issue Comparison (Continued).

Issue	Affected Item		Alt. One No Action	Alt. Two Proposed Action	Alt. Three	Alt. Four	Alt. Five	Alt. Six	Alt. Seven Preferred	Alt. Seven-A
Economics[5]	Estimated Potential Income	Federal Contracts	$0	$5,489,680	$3,604,075	$6,172,420	$5,163,970	$2,448,370	$6,135,020	$6,062,710
		Federal Salary Support	$5,365	$5,342,980	$4,657,820	$5,858,950	$4,179,340	$3,404,220	$6,067,880	$5,878,670
		Wood Products (Sawtimber)	$0	$8,642,418	$0	$10,031,806	$6,661,282	$0	$10,031,806	$10,031,806
	Estimated Potential Jobs	Federal Contracts	0	45	20	55	45	15	55	55
		Federal Salary Support	0	35	15	40	30	15	40	30
		Wood Products (Sawtimber)	0	300	0	355	235	0	355	355
	Present Net Value (PNV)[6]		$0	-4.1 million	-2.9 million	-4.5 million	-3.3 million	-2.4 million	-4.5 million	-4.4 million

[5] Potential income (rounded to the nearest 10) and employment (rounded to the nearest 5) is based on proposed management actions. Discounting at 4%/year has been applied to result in 2002 dollars.
Federal Contracts: The value of potential contracts was derived from proposed restoration work (acres and structures) and average costs per unit. The results were discounted at 4% to the present from the year the activity would occur.

[6] Present net value is defined as the present (discounted) net value of project benefits minus the present (discounted) net value of project costs. All PNVs are negative due to the cost of restoration activities associated with fuels reduction and thinning.

Table –2-20. Issue Comparison (Continued).

Issue	Affected Item	Alt. One No Action	Alt. Two Proposed Action	Alt. Three	Alt. Four	Alt. Five	Alt. Six	Alt. Seven Preferred	Alt. Seven-A
Big Game Habitat[7]	Thermal Cover (summer range)	24%	14%	24%	13%	18%	24%	13%	13%
	Thermal Cover (winter range)	36%	32%	36%	31%	34%	36%	31%	31%
	HEI (summer range)	.42	.45	.48	.45	.43	.45	.43	.43
	HEI (winter range)	.49	.52	.52	.52	.50	.50	.50	.50

[7] Numbers in this section of the table are watershed averages. See Chapter Four for subwatershed values.

Table 2-21. Proposed Implementation Schedule.

		YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	YR10	YR11	YR12
Harvesting	Includes Aspen stands with harvest. If pct is secondary treatment, it should be accomplished within a year of when the unit is released from contract.												
	Burnt	Offer											
	Curry	Offer											
	Curry II	Offer											
	Curry III		Offer										
	Curry IV		Assuming salvage sales would be offered and priority this year.	Offer									
	Dry			Offer									
	Mud			Offer									
	Burnt II				Offer								
Precommercial Thinning	Burn Block	Areas where PCT is the primary treatment. Priority by burn block. PCT in Myrtle-Silvies Roadless and Fuel block 11 are funded by wildlife.											
	1						X						
	2					X							
	3				X								
	4					X							
	5			X	X								
	6			X	X								
	7		X	X									
	8				X	X							
	9		X	X									
	10						X						
	11				X	X							
	12				X	X							
	Myrtle Ck		X	X									

Table 2-21. Proposed Implementation Schedule (cont).

		YR1	YR2	YR3	YR4	YR5	YR6	YR7	YR8	YR9	YR10	YR11	YR12
Prescription Burning	Burn Block	Rx burn would occur when an entire burn block is available to burn. This is the general sequence of burns blocks as they relate to harvesting and pastures.											
		Burning of burn blocks must be coordinated with range and tribe prior to implementation.											
	1										X		
	2											X	
	3							X					
	4												X
	5									X			
	6						X						
	7					X							
	8						X						
	9					X	X						
	10								X				
	11					X	X	X					
	12						X						
	Myrtle Ck Piles				X	X							
Aspen	PCT and fencing would occur the same year as commercial treatment.												
	In aspen units with no commercial treatment, PCT and fencing would occur in the order of Burn blocks listed above.												
Post and Pole	Depends on market but could begin as early as 2004.												
Road Activities	Would occur after sales are released.												
Cotton-wood	PCT and fencing can occur any time.												
Springs	PCT of springs can be included in PCT above where practical and fencing/development can occur any time after PCT.												
Juniper	Can be included in PCT above where practical otherwise do in order of fuel blocks.												